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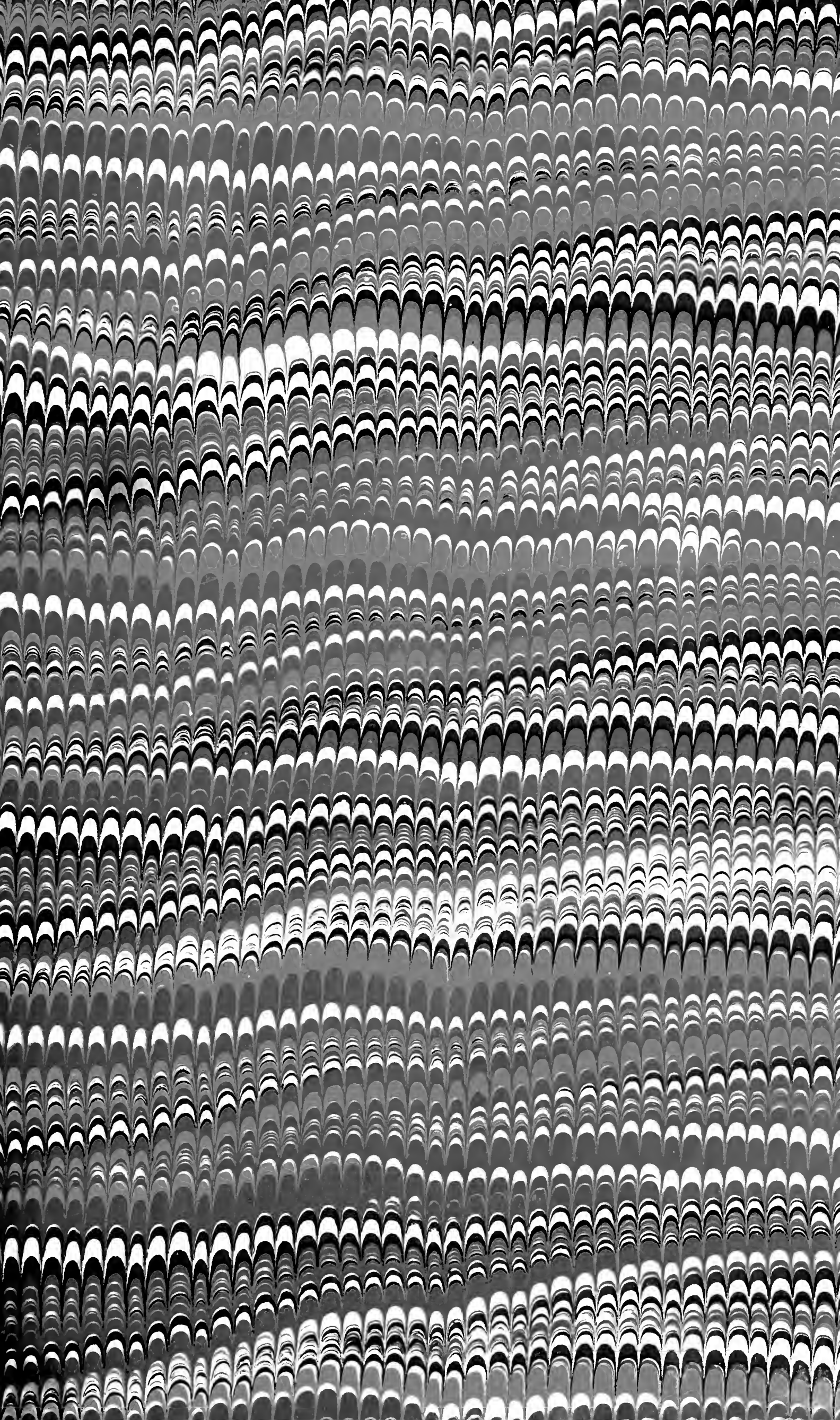
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AMERICAN

VETERINARY REVIEW.

PUBLISHED BY THE
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VETERINARY MEDICAL ASSOCIATION.

A. LIAUTARD, M. D. V. S., Editor.

A. LOCKHART, M. R. C. V. S. L., Assistant Editor.

VOL. I.



NO. I.

JANUARY, 1877.

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1877.

With the year 1877, the first number of the **AMERICAN VETERINARY REVIEW** is issued.

This is done in accordance with a resolution passed at the last meeting of the United States Veterinary Medical Association—with the object of promoting an exchange of views amongst practitioners upon different medical Subjects—also to record all cases of special interest as they may occur, and be reported by Veterinarians all over the Country.

It will contain the papers read at Philadelphia, at the 13th Anniversary Meeting of the Association, viz.:

History and Progress of Veterinary Medicine in the United States, by Prof. A. LAUTARD, M. D. V. S. Page 5.

Zymotic Diseases, by Prof. JAMES LAW, M. R. C. V. S. L. Page 20

Use of Stimulants in Diseases, A. A. HOLCOMBE, D. V. S. Page 29

On the Causes of Some Chronic Lameness of the Foot, by THEOD. VERY, V. S. Page 39.

And the report of a case of Erysipelatous Cellulitis, by E. F. THAYER, M. D. V. S. Page 49.

On Sanitary Measures, by Prof J. McEACHRAN, M. R. C. V. S. L. Page 51.

HISTORY AND PROGRESS OF VETERINARY MEDICINE.

GENTLEMEN : When we look over the statistics which all of us can gather at the Agricultural Bureau in Washington, our attention cannot help but be attracted to the immense improvements, which have especially in late years rewarded the efforts of the agricultural people of this country, and also to closely observe what enormous progress we have made in breeding and raising of live stock. No less that 25 years ago our domestic animals were counted by about—in round figures, 5,000,000 horses, over 17,000,000 of cattle, 22,000,000 sheep, and 30,000,000 of swine; and in our last census we find these figures raised to over 8,000,000 horses, 22,000,000 cattle, 28,000,000 sheep, 26,000,000 swine. Twenty-five years ago a capital of about 600,000,000 of dollars represented the value of the live stock of those days. To-day we lay on it a value of 1,600,000,000 dollars.

These statistics presented to you to-day, tell you the progress that the United States have made during the last 25 years, and give you an idea of what it has been in the last Century. Still while a short distance from this hall, on magnificent plots of ground, in immense buildings the United States have brought together all the different branches of science and art, so as to show the world our advancement during the past hundred years of our existence as a Nation, does it not strike your mind and that of any, observer, that in these immense gatherings, in these vast collections, in this great show of the new world, where everything is represented, where every science, art and trade has its place, Veterinary Medicine alone is absent. No matter if it prevents diseases, restores health, improves breeds of animals, regulates sanitary measures, protects trade of animals: no matter, if this immense fortune of \$1,600,000,000 owes much of its existence to veterinary art, to comparative medicine, in our Centennial buildings, in our exhibition, there is nothing pertaining to it, for I cannot consider anything the lame attempts which you may find in the Army department, or in the Agricultural department; both of which consist merely of the exhibition of a few pathological specimens. And why is this? Why is there no provision made in this Country to protect the live stock? With few exceptions there is no one ready to oppose the ravages of an epizootic. All our animals are thus left exposed to all the dangers of disease, and that because with all its importance amongst all professions the Veterinary is the only one, which has been sadly neglected in America, and which in this year of our Centennial Celebration has made the least progress.

On this occasion it has seemed to me proper to pass a general review of the advancement of Veterinary Medicine in the United States for the last century, by laying before you, what historical facts I have obtained relating to our humble and modest but nevertheless grand and important specialty. No doubt many points in connection with this paper will be found deficient from the lack of documents or records to be looked into. Again, to write such a history, probably a much older man and above all a much older

though American Citizen would have been better qualified for the task, but if I cannot do justice to the subject as it deserves, I can vouch for the exactitude of many parts of it of the last 40 years, I feel in presenting you with these remarks, that I lay the foundation for a better history, to be written when our profession will occupy amongst Americans the place where it ought to be—*second to none*.

For much information which I will present you, I am indebted to the kindness of many amongst you: for much, I have carefully looked into periodicals, agricultural, scientific and even sporting papers: for many facts of the last sixteen years I can knowingly speak as I have been connected with all more or less; a fact which may oblige me to mention my name more than I would like to, and for which I beforehand must beg your pardon for fear of being accused of egotism.

As in the Old World it may be said that in the U. S., Veterinary science was first left in the darkness of the old days, and curiously enough, that though with the opportunity of the experience of the Old Continent, America has not from the day of her Independence until late years taken any serious interest in the welfare of her domestic animals. She has spared nothing to improve her breed of horses whose speed is superior to any in the world. To improve her cattle, her sheep, her swine, she has borrowed from Europe, what she has been unable to find at home. But up to late years, relating to Veterinary cares nothing is to be found in any of the agricultural or sporting papers, with the exception only of a few prescriptions of more or less value, of more or less originality.

Indeed scarcely can the word Veterinary be found in print, and many of us remember having seen it spelled wrong, even by men who claimed to be regular members of the profession.

On inquiries made to the Agricultural Department in Washington, I am informed that beyond a number of works on Veterinary Science many of which I know to be of European origin, there is nothing in the archives of the Department referring to the practice of Veterinary Medicine or its standing in the Country.

In the work written by C. L. Flint, Secretary of the Board of Agriculture of Massachusetts, published in 1864, and called "Eighty years progress," we find that taking from the Revolutionary War to the great Rebellion every branch, science and art is treated, and all steps toward improvement are carefully noticed. Agriculture of course occupies an important place, and though it shows us all the improvements made on horses, on cattle, on sheep and on swine, not a word is said of the most important branch of agriculture, not a word is said of Veterinary cares beyond the citing of publications of a few works such as the Modern Horse Doctor of Dadd, sold at no less than 20,000 copies—of Youatt and Martin on cattle, of which 10,000 copies were disposed of in the United States, and of Youatt on the horse, of which 23,000 have been thrown all over the Continent; we all know the value of these works.

Sixty years ago New York City, then a small town, had no Veterinary practitioners. It is only about ten years after that John Rose, a graduate of Prussia came, established himself, and in a short time commanded a large practice—some ten years later however he was followed by C. C. Grice a graduate of London of 1826; then came R. H. Curtis, A. Lockhart, R. H. Budd, C. Pilgrim, all M. R. C. V. S. L., all of which may be called the pioneers of Veterinary Medicine in New York State. R. H. Budd who landed in 1831 combined the horse shoeing business with his practice; he left a little work called Practical Treatise on diseases of the foot—a work which had not only a good publication in England but reached in New York a second edition, and which contains many good points for the time it was written—nay, for our days.

In Massachusetts fifty years ago a Mr. Harrington, blacksmith was the leading man in Boston. Besides his trade and as a branch of it, he took charge of all sick animals—his specialty was Theory and Practice. His workman John Davis, who I understand is yet living, was the surgeon, and many a Sunday morning found him fleams and bleeding stick in hand busy practicing venesection. Sometimes, however difficult cases would be brought to the consultation, the Physician and Surgeon would be at a loss; but then they would send the patient to Roxbury, where a Dr. Brown kept a large infirmary for the purpose.

In Pennsylvania we have records older than those obtained from either New York or Massachusetts. In 1818, we find registered by D. Caldwell, Clerk of the Eastern District of Pennsylvania, that "on the 23d day of June, 1818, James Carver hath deposited in this office the title of a book, the right whereof he claims as author, in the words following: The Farrier's Magazine or Archives of Veterinary Science containing the Anatomy, Physiology and Pathology of the horse and other domestic quadrupeds, and compiled from the lectures, and practice of Veterinary Colleges of London, France, Germany, Russia and British India—by James Carver, Veterinary Surgeon, Master of Equitation and corresponding Member of the London Veterinary Medical Society and the College of India." The title of the work and those of the author tell of the value of the whole subject, which besides an appeal to the people of Pennsylvania, to the public at large, a dedication and advertisement, contains a little over a hundred pages of matter of no interest. At the end of this work as an appendix, Mr. J. Carver makes the announcement of a series of books which he will publish, on stable duty, on food, on labour, on epidemic diseases, and many others, which if printed have not come to my notice. Mr. T. Mitchener, who must occupy a very first place amongst the Veterinarians of Pennsylvania, he having been there for many years, nearly fifty, and by his ability being considered as one of the leading men of that State, must well remember the days of James Carver.

In New Jersey, we know of nothing pertaining to Veterinary Medicine beyond the fact that no regular graduate could be found there until within the last two or three years.

In all probability this general condition prevailed all over the Country, and it is to be supposed that with a few exceptions, the practice of Veterinary Medicine was left in the hands of ignorant men, stablemen or blacksmiths, and that the absurd and nonsensical notions which we even find in our own days, were to a great extent the treatment of those times. Who amongst us has not heard of the swelled shoulder, of the chest, founder; of the worm of the dog's tail, of the horn ailment, etc., etc.

But that state of affairs could certainly not last forever on our continent; for us the live stock is not only a beast representing so much capital, he is one of our fancies, of our distraction, he is one of our pets, I may say, and generous as we are, if not for science but for humanity, little by little the need of the Veterinarians of education has slowly been gaining ground, and there we find Massachusetts, the first at the head of the onward movement.

In 1835, C. M. Wood had arrived in Boston, and there by his activity, his energy, soon after working as an assistant to some smith, raised himself to a high position amongst his co-citizens as a Veterinary practitioner. In 1849, G. H. Dadd, neither a graduate of Human or Veterinary Medicine (at least I find no record of these degrees,) started himself as Veterinary Surgeon in Boston advertising lists of medicines for sale. In 1851, he started the publication of a Veterinary Journal, which

lasted for one year, but was revived in 1855—at that time he published the first edition of the *Modern Horse Doctor*, the advocate of Veterinary reform, the outlines of Anatomy and Physiology of the horse. In that year of 1855 he obtained from the legislature a charter, establishing the first Veterinary College in America under the name of the Boston Veterinary Institute, with a Medical Staff, consisting of

G. H. DADD, - in the chair of Anatomy and Physiology.

C. M. WOOD, - do. Theory and Practice of Medicine and Surgery.

R. WOOD, - - do. Practice on Cattle.

A. S. COPEMAN, - do. Chemistry and Pharmacy.

This Faculty formed also the Corresponding Staff of the *AMERICAN VETERINARY JOURNAL*, in which many interesting articles, especially from the pen of C. M. Wood can be found.

Why did this first step fail? Why did the Institute live but a short time after its birth? And why also did the Journal stop its publication after living about three years after its resurrection, are facts which I have not been able to establish with certainty. But these are not the only facts to be considered with the advancement of Veterinary Medicine in Massachusetts. I would not be doing justice to one of her practitioners, should I omit to mention the name of E. F. Thayer, who had established himself in Boston in 1854, and brought himself to such a position that we find him in 1859 receiving the appointment of Cattle Commissioner to investigate the disease known as pleuro-pneumonia; and by him principally was the whole work of the investigation carried on. His work proved so satisfactory, and his ability and straightforwardness and close observation had been so well appreciated that we find him again in 1861 receiving another appointment to work upon the same disease—in 1868 we see him seated amongst the delegates of the State Commission, who had assembled to consider the effects, danger and sanitary measures concerning the appearance of Texas Fever—and at last we find him also holding another appointment in 1870 to take measures to protect the State against the foot and mouth disease, the Epizootic Aphtha. In 1858 Massachusetts is again at the head of the States, it forms at Boston the Veterinary Medical Association, with C. M. Wood as President, with E. F. Thayer as Treasurer—this was probably the first Veterinary Association formed in this Country.

New York during that time had been watching the efforts of Massachusetts, she had seen the Boston Veterinary Institute born and nothing more. She had witnessed the death of the American Veterinary Journal, and jealous of being on the first ground, and probably thinking she had benefited by the failure of her sister State, in 1857 she applied to her legislature and obtained for her a charter incorporating and legalizing the New York College Veterinary Surgeons. In that year assisted by several gentlemen, Dr. John Busteed obtained from the Legislature of New York a Charter granted to the New York College of Veterinary Surgeons. Shortly afterwards by private subscriptions, a handsome building was erected in West 23d Street, near 6th Avenue, and all seemed fair to go on well, Dr. Busteed and Mr. Ralston, M. R. C. V. S. L. an ex-Indian Veterinarian constituted the faculty, and incomplete as this was, it was the first steps towards the regular establishment of the School; but when the time came for the lectures the faculty failed in its duties, and shortly afterwards the college was closed up, and the whole place used for a livery stable, which was destroyed in 1865 or 66 by fire. It was to be regretted that this attempt proved such a failure, for properly speaking everything in that enterprise looked like success. Dr. Busteed, whose name by the way, must necessarily be connected with any

thing pertaining to the establishment of Veterinary Medicine, was not discouraged however by this first attempt. Having found much difficulty in bringing the Board of Trustees together, application was made for an amendment, which was granted to the same Board in 1862. Everything looked bright once more, Dr. Busteed was very enthusiastic, and there was nothing lacking but a building to have a school started, which however was soon obtained at 205 Lexington Avenue, where Dr. Liautard had been engaged in private practice for years. In 1864 the faculty was organized as follows:

DR. BUSTEED, Professor of Materia Medica and Therapeutics.

DR. LIAUTARD, Lecturer on Comparative Anatomy and Surgery.

DR. LARGE, do. Physiology.

MR. COPEMAN, do. Theory and Practice.

These lectureships were given only temporarily until, if found capable, Professorships were to be granted afterwards.

Now, Gentlemen, the New York College of Veterinary Surgeons was fully organized. Circulars were issued. The first session was held in 1864 and 65; the first year no less than seven students were attending the lectures, when the sudden and permanent retirement of one of the gentlemen nearly caused a difficulty in the carrying on of the Institution. In 1866 Dr. Weisse was appointed as Lecturer on Chemistry and Materia Medica and Therapeutics in place of Dr. Busteed, who takes the lectures on Histology. In 1868 Dr. L. Mason is added to the faculty as Professor of Physiology in place of Dr. Large, who had been filling the department of Practice. The first session 1869 and 70, saw another change, another re-organization of the faculty, Dr. Busteed retired from active work altogether, and the corps of Professors re-arranged, remaining as follows until 1875:

DR. A. LIAUTARD, Professor of Anatomy and Surgery.

DR. A. LARGE, do. Practice.

DR. F. D. WEISSE, do. Surgical Pathology.

DR. A. W. STEIN, do. Physiology and Histology.

DR. S. R. PERCY, do. Chemistry, Materia Medica and Therapeutics.

DR. J. L. ROBERTSON, do. Cattle Pathology and Obstetrics.

The success attending the Institution was great. The class which had first been very small,—in 1868 there was but one student for the whole session,—soon increased until 1873, when 18 students had matriculated: but unfortunately the N. Y. C. V. S. was doomed to the same fate as its predecessor in Boston. About that time difficulties arose in the Board of Trustees giving rise to legal controversy, and the gentleman who had been up to this time the father of the institution by his oversights brought on by sickness and ill judgment, became the cause of its death; through his conduct the faculty in consequence of the trouble in the Board of Trustees, resigned in a body. Dr. Liautard who had entire control of the school, who had built his clinical department successfully as superintendent, and after as Chief Veterinary Surgeon, resigned also, and from that moment I may say the N. Y. C. V. S. had come to an end. The lectures were no more delivered, the hospital soon had to close its doors, the property was sold to satisfy indebtedness, all that after the session of 1874-75, after an existence of ten years.

I may be allowed here to correct some statements which found their way into the Newspapers, in an obituary article of Dr. Busteed and C. C. Grice, where the former was called the founder and sustainer with his own means of the school, and the second

one of the founders also. To Dr. Busteed is due the foundation of the school, but the college sustained itself by its clinical and outside practice. C. C. Grice had no other connection with the College, but being one of its censors, a position which he occupied with two or three other members of the profession.

Now, in the same direction Pennsylvania came forward. In 1866 the Pennsylvania College of Veterinary Surgeons obtained its Charter, and issued its first circular with the faculty organized as follows :

ISAIAH MITCHENER, in the Chair of Theory and Practice.

R. JENNINGS, do. do. Pathology and Surgery.

M. W. BIRCH, do. do. Materia Medica and Pharmacy.

J. M. CORAT, do. do. Anatomy and Physiology.

and with a corps of clinical teachers : (J. B. RAYNOR and T. J. CORBYN.)

But like Massachusetts, this school was doomed to no real existence—like her also, she was a school merely in name, she had no building, no college proper; I am not sure that regular lectures were ever given, though they had use of the rooms of the Agricultural Society. But nevertheless we may meet with many Diplomas granted from that school, which like a few, headed Boston Veterinary Institute, have been unjustly and illegally granted, and may be considered worthless.

These successive efforts in behalf of advancement in these three States, unsuccessful as they had been in two, stirred up the enthusiasm of the practitioners over the country, and in 1863 in response to a call made through the newspapers, but originally started by the initiative of the Philadelphians, many persons interested in Veterinary Medicine assembled at the Astor House in New York, on the 9th of June, and organized the United States Veterinary Medical Association.

Maine, Pennsylvania, Delaware, Ohio, Massachusetts, New York and New Jersey, were all prompt to answer to the call, and no less than forty gentlemen placed their names on the first roll. The organization took two days, and after the drafting of the Constitution and By-Laws, Dr. J. Stickney, M. R. C. V. S. L., was unanimously elected its first president.

Meetings have been held ever since yearly, and lately semi-yearly in Boston and New York, and many interesting papers read, amongst which I may mention those of A. S. Copeman, a Compilation on Vital forces—of C. M. Wood on Veterinary Education—of Dr. Large on Cerebro-spinal Meningitis—of Dr. Liautard on the same subject and on Chronicles of foreign papers—of E. F. Thayer on Parotid Salivary fistula and on Texas fever.

To these readings has the work of Association so far been limited, not from the want of willingness to work or of professional ambition, but from lack of public interest and support. Nevertheless, it is bound to be one day an important scientific organization, its members number to-day in its thirteenth anniversary nearly forty, who are all practitioners of Veterinary Medicine, spread all over the country and are well represented to-day in this hall.

The importance of Veterinary science now begins to be felt all over the United States, and its vital influence upon the general welfare of live stock is soon recognized by Agricultural schools. In 1868 the Illinois Industrial University which had been chartered in 1867, had amongst its departments a school of Agriculture, and amongst its branches a veterinary course, and an endowment of \$3,000 for a Veterinary Hall, stable, etc. F. W. Prentice, M. R. C. V. S. L. is appointed Professor at the chair of Veterinary Science. The curriculum covers the field of veterinary studies. Sick

animals are brought in from the neighborhood and treated free of charge for the benefit of the class. However the purpose of the school is not to give a full Veterinary education, but at the same time several students have become, I understand, good practitioners. The principal lectures dwell on Entomology, Physiology and general Veterinary Science.

In the same year 1868, Cornell University appreciates the need of such a branch in her curriculum, and by the example of what she sees in the European Agricultural Schools, she goes to England and appoints through President White, Professor James Law, M. R. C. V. S. L., already the author of a work on the Anatomy of Domestic Animals, to the chair of Veterinary Medicine. As Professor Law reached America we had then the excitement caused by the appearance of the Texas fever brought on this side of the Continent, and it was at the post-mortem of a bullock killed at the Abattoir in New York, that I had the pleasure of meeting him. His remarks on that disease are found in the report of the Health Board of 1869. Filling the position of Veterinary Editor of the New York Weekly Tribune, he is soon appointed Consulting Veterinary Surgeon to the Agricultural Society of New York State. At Cornell, the chair of Veterinary Medicine covers an immense field, and though it claims to work somewhat on the same principle as the school of Grignon in France, its curriculum is most extensive.

The regular course for students in Agriculture and Natural History embraces:

First. Five lectures per week, extending over the academic year.

Second. Laboratory work on bones, skeletons, elastic models, pathological preparations and parasites.

Third. Clinical instruction on the cases occurring in practice. The text books and books of reference, are of the most recent date, all modern European authorities are brought forward.

For the degree of Bachelor of Veterinary Science, a four years course is provided for, the last two years of which are entirely devoted to special veterinary studies, and embrace a most complete curriculum.

Anatomy, Physiology, Histology, Zootechny, Hygiene, Botany, Toxicology, and Pharmacy, with Therapeutics being in the hands of some of the teachers of the Agricultural Department of the University.

To the chair of Veterinary Medicine are left—Principles and Practice, Surgery, Obstetrics, Surgical Pathology and Anatomy, Examination of Soundness, Principles of Shoeing, physiological and pathological.

Although this may seem a very heavy load to carry for that department, it must be remembered that six (two being post-graduates) years' study is required, followed by a satisfactory examination, thesis, etc., before the degree of D. V. M. (Doctor of Veterinary Medicine) is granted by Cornell University.

In later years the Agricultural School of Amherst tried to follow the same road and, in 1869, J. Stickney, M. R. C. V. S. L., occupied the position of Lecturer on Diseases of Domestic Animals. In 1873, Dr. Noah Cressy, a graduate of human medicine, was appointed to fill the same department. The curriculum is much limited although it includes lectures on Comparative Anatomy, General Pathology, Veterinary Medicine, and Clinical Surgery, thus giving a general outline of veterinary practice in connection with agricultural education, I understand the attendance to this instruction is quite small.

Virginia, in the Washington and Lee University, has recently created a department

of Veterinary Medicine, and has some money endowed for the improvement of this branch of Agricultural Studies. Beyond the appointment of Colonel McCullough, who claims no right to the teaching of veterinary medicine, further than generalities and Comparative Anatomy, I am not aware that any professor has been appointed to the chair yet.

The Ohio Agricultural and Mechanical College, founded in 1862 and opened in 1873, has a chair of agriculture, with Professor Norton S. Townsend, M. D., as teacher.

The study of Anatomy is worked practically in the dissecting room upon smaller animals, such as sheep, pigs, dogs, while the horse and ox are dissected whenever opportunities offer. The lectures on Diseases of Animals—medical and surgical treatment—are occupying the second and third term of the second and third year of Agriculture. No degree is given as Veterinary Surgeon.

The Maryland Agricultural College has lectures delivered to its class on Veterinary Medicine and Surgery, with Youatt and Martin on the Horse and Cattle as text books.

The Agricultural College of Pennsylvania has lectures on Veterinary Science delivered to the senior students of the sophomore class.

The course on Agriculture at Dartmouth College, New Hampshire, has, in her second term, a series of lectures on Human and Comparative Physiology and Veterinary Medicine and Surgery.

The Iowa State Agricultural College announces for the second term of senior students a course of lectures on Veterinary Science and Practice.

The State Agricultural College of Vermont, in its last circular, says, that arrangements have been made by which hereafter a series of lectures on Veterinary Science and Practice will be given as may be needed.

Some years ago the Bussey Institute of Boston had a chair of Veterinary Medicine filled by Dr. Slade, which, however, had little attendance.

In 1868, we all remember the excitement caused by the appearance of Texas fever in cattle on this side of the country. Cattle were dying rapidly. The whole country was alarmed. So sudden did it appear that scarcely any one was ready to meet the emergency. Every one who had an official character was ignorant and at a loss as to what the disease was, its nature, and what sanitary measures were necessary to check its ravages. Health Boards, composed of physicians having no official veterinarian were in the dark, and many dollars were spent to satisfy the public which could have been saved if veterinary surgeons, who had no difficulty in recognizing the carbuncular nature of the disease, had been connected with those boards. At that time Professor J. Gamgee was in this country trying to introduce a process for preserving meats; the government took advantage of his visit and had him appointed special commissioner to investigate the disease; and it is to be regretted that the Professor did not seize that opportunity to bring the veterinary profession forward more than he did, and which he could have done by the prestige which surrounded his name and by his well-known ability.

This appointment and its recognition by the general government, had some influence however, upon the importance of veterinary science in connection with Health Board, and it is then that we see the appointment of E. F. Thayer in Massachusetts—of A. Liautard in New York—of A. Large in Brooklyn—of N. Cressy in Connecticut; and from 1872, when their work and knowledge began to be appreciated, their services are slowly getting a better recognition. The Epizootic of 1872 has been for

them an opportunity, which in their official capacity has found its way into the history of that great invasion as recorded in the different health reports. ✓

So as to show you how little was known of the requirements of veterinarians I will report to you facts of some importance which took place some two or three years ago in Congress at Washington, and which, I think, will be found interesting. They are taken from the *Atlantic Monthly*, of September, 1869. While speaking of the lobby in Washington the author describes a scene which has much bearing upon the standing of the Veterinary Profession. I now read from the monthly :

“ But to my scene. One afternoon in February last, while the House in Committee of the Whole was working its slow and toilsome way down, item after item, through the Army Appropriation Bill, under the leadership of the alert and vigorous Mr. Blaine, now the Speaker of the House, a clause of the bill was about to pass without debate, when Mr. Fernando Wood, of New York, rose and offered the following curious amendment ; ‘ But no part of the sum (appropriated) shall be paid to Alexander Dunbar for his alleged discovery of the mode of treatment of horses’ feet. There had been no mention of the said Dunbar in the clause, nor of his mode of treating horses’ feet, nor of any other system of treatment ; and the very name of the man was evidently unknown to the House. Mr. Wood proceeded to explain that the Secretary of War, General Schofield, had made a contract (authorized by act of Congress) with Alexander Dunbar, by which the latter was to receive twenty-five thousand dollars for imparting his system of horse-shoeing and hoof-treatment to the veterinary surgeons and cavalry blacksmiths of the army. ‘ And I am advised,’ continued the member from New York, ‘ by those who are judges of that subject, that the man is totally ignorant, that he knows nothing about the diseases of horses’ feet, and that he rather perpetrates injury upon the poor animals than produces any benefit to them.’ ✓

“ Fernando Wood, in his air and demeanor, is one of the most dignified and impressive members of the House. He attends carefully to his dress ; and as to his ‘ deportment,’ Mr. Turveydrop would contemplate him with approval. For such a personage to rise in his place, and, in a measured, serene manner, discourse thus upon a subject of which no man on the floor knew anything whatever, could not fail to produce some effect. Mr. Blaine could only say, that he had never heard the name of Alexander Dunbar before ; but that he thought the amendment cast a severe reflection upon the Secretary of War. Mr. Wood insisting, the amendment was finally amended so as to make the exclusion apply to the whole Appropriation Bill ; and thus cut off the unknown Dunbar entirely ; and in this form, I believe, it passed the Committee of the Whole, and was prepared for submission to the House ; at least, Mr. Wood agreed to withdraw his amendment in order to amend it in the way described.

“ It did so happen that there was a person sitting in a commodious corner of the reporters’ gallery, who, though a stranger to Mr. Dunbar, and singularly ignorant of horses, yet knew all about the Dunbar system and its discoverer. That person, strange to relate, was myself ; and if it had not been a little out of order, I should have shouted a few words of explanation over the vast expanse below. Rising superior to this temptation, and thus avoiding the attention of the sergeant-at-arms, I constituted myself a Dunbar lobby, and imparted to as many members as possible some of the facts which I am now about to communicate to the reader. Some years since, the mysterious Alexander Dunbar, an honest, observant farmer and Contractor, of Canada, was driving a lame horse on a hilly road. He noticed that the horse was lamest when

going down hill, but not lame at all going up hill. Having observed this peculiarity for several miles, he began to speculate upon the cause; and by carefully examining the action of the horses' feet, he discovered it. The blacksmith had pared the hoof on the wrong principle,—cutting it close where it out to have been left thick, and leaving it unpared where nature constantly produces a redundancy. He tried his hand at remedying the mistake. He cut boldly at the parts that were in excess, and the lameness was cured! A few judicious cuts with a sharp knife, and a shoe adapted to the natural growth of the hoof,—this is all there is of the Dunbar system, which was elaborated by the mystical Alexander after some years of observation and experiment, suggested by this incident. He found many cases of lameness of years' standing could be cured radically and almost instantly by simply paring the hoof aright and altering the shoe.

"We have in New York an enthusiast on the structure of the horse,—Mr. Robert Bonner, whose stable contain six of the fastest trotting horses in the world. He was led to study the anatomy of the horse by endeavoring to get at the reason why some horses can trot in 2-20 farther than an ordinary nag can in five minutes. He was curious to know just where the trotting talent lies; and his led to other inquiries. Hearing by chance of Mr. Dunbar's discovery, he investigated it most thoroughly, and came to the conclusion that the Dunbar system was founded on the eternal nature of things. I suppose that, during the last three years, Mr. Bonner has, with his own hands, pared the hoofs of more than fifty horses on the Dunbar plan, and thereby cured a dozen cases of lameness, supposed to be incurable. In his great desire to test the discovery, he has traveled a hundred miles sometimes for the sole purpose of having a lame horse shod in the Dunbar style, very frequently paring the hoofs himself. Recently the discoverer has been amongst us, and his system, after having been adopted in several of the largest stables in the United States, was introduced into the army; but as usual, his success was damage to other men, particularly to the proprietors of a patent horseshoe, which Mr. Dunbar was compelled to say was not made in accordance with the eternal nature of things. Hence a patent horseshoe lobby! Hence Mr. Fernando Wood's strange amendment. Mr. Dunbar's friends rallied, however, in time to enlighten the House and no harm was done."

This is an error. There was some harm done; for the appropriation to Mr. Dunbar was reduced by more than one-half. There is, however, no comment in relation to this article. Who was wrong? Certainly not Mr. Fernando Wood.

And I doubt if any of the veterinarians of these days knew that in Congress there was a gentleman, who could distinguish between true veterinary knowledge and that of a Mr. Dunbar, whose appointment we find condemned in the minutes of the United States Veterinary Medical Association as follows:—"Moved and seconded, That the United States Veterinary Medical Association as a body protests against the appointment by the general government, through the recommendation of General Grant, of Mr. Dunbar as a Clinical Lecturer to the army veterinary surgeons and farriers, for an alleged discovery of a mode of treatment of the diseases of horses' feet, the operation being no discovery but a regeneration of an obsolete idea, and worthy of the attention and patronage of the Society for the Prevention of Cruelty to Animals, it being an evidence of both ignorance and barbarity. Furthermore, Mr. Dunbar has no claims whatever to the title of veterinary surgeon, either by education or professional association."

During the same year an important appeal was made to Congress by Dr. John Busteed, then working with enthusiasm as President of the New-York College of

Veterinary Surgeons. For several days he remained in Washington and worked hard to awaken some good feeling amongst congressmen in favor of veterinary medicine. His appeal to the members of the House of Representatives was short but very much to the point ; and when, after laying before the House, the wealth of our Country, the dangers to which our live stock were exposed, the risk which surrounds it by disease—when he then said to them, “What are the means best adapted to check these evils? Have we well-educated veterinary surgeons? Have we veterinary schools? Have we, in the Civil or Military departments of the Government, or in our Board of Health, a sufficient number of educated veterinary surgeons to hold in check, or advise us, if an epizootic should appear, or have we any at all?” The House was then, for the time being, well up to the importance of the subject. Dr. Busteed’s appeal was certainly going to be acted upon: he could return home—so he did—and that was the last of it. Once more veterinary medicine was doomed by the very ones whose duty it was to bring it forward.

Legislatures had been appealed to without success—Congress had not kept its promises. Let us see now what the Medical Profession itself was willing to do, and what it has done for its sister branch.

In 1870, Dr. Stein, then filling the chair of Physiology in the N. Y. C. V. S., received from the New York County Medical Society the appointment of delegate to the American Medical Society meeting in Washington.

Instructed and well prepared to treat of a subject, to which by his own profession he might be somewhat a stranger, he went to the meeting, and there, after much labor, accomplished an important step, viz. : the professional recognition of the Veterinary by human medicine.

Let me repeat Dr. Stein’s statement relating to the whole affair. He says: “Prof. Thomas Antisell had prepared an elaborate and highly interesting report upon Veterinary Colleges abroad, their extent, work, etc. After partial reading of this report it was, upon motion, referred to the committee on publication, I being the only one I believe opposing the motion. The next day I asked a gentleman (who had voted in the affirmative, or perhaps not voted at all) to move a reconsideration of the motion referring to Dr. Antisell’s paper to the committee on publication, which after some little discussion was carried. I then offered a resolution that the paper and the whole subject of Veterinary Medicine be referred to a special committee to report the same meeting,—Carried.

The President appointed Drs. S. D. Gross, Thos. Antisell, and myself as a committee ; I then put in writing the following preamble and resolution, and then submitted them to Profs. Gross and Antisell, both concurring in the sentiment thereof.

Whereas, We regard the cultivation of Veterinary Science of the most vital importance, not only to the advancement of human medicine, but also for reasons of political economy, and agricultural interest.

Resolved, First, That we recommend the State and County Medical Societies to use their influence in the establishment and support of Veterinary Schools in their respective States.

Second, That they ask the Governors of their respective States to recommend in their messages to their Legislatures the importance of establishing Veterinary Colleges, and that appropriations be made to support them.

Third, That they recommend the Governor and the State Legislature when organizing Boards of Health, to appoint one or more thoroughly educated Veterinary Surgeons to be associated as commissioners with other medical officers.

Resolved. That we recommend the employment of Veterinary Surgeons in the Army, and one in the Agricultural Department, with rank and pay of other medical officers. The following day the resolutions were read by the Secretary, and the vote being taken, was lost. There was very little doubt that the resolutions were lost by a large majority, but notwithstanding I asked for a decision of the vote. Before the decision was called, I took the floor and amid considerable opposition, debate being out of order, I asked it as a special consideration to be allowed to make a few remarks relative to the above resolution before another vote was taken, which was granted.

"I thereupon gave a brief account of the progress of medicine in regard to its relation to Comparative Physiology and Pathology, showing how every advance in human medicine, was the result of previous experiment upon lower animals, and after citing the illustrious names of those who had engaged in this great work, and in Veterinary Science in general, and then giving a practical turn to my concluding remarks in reference to the needs of Veterinary Colleges, and educated Veterinarians in agricultural interests, and in the United States Army, a new light seemed to dawn upon the minds of many present, and the resolutions being taken up *serratim*, the three first were adopted unanimously, the fourth, amended by Dr. Otis, U. S. A. as follows:

"That we recommend the government to appoint a Professor of Veterinary Medicine and Surgery to be attached to the Agricultural Bureau with a suitable salary,—adopted (communications were afterwards received asking to recommend persons for said appointment); Dr. Mussy of Ohio, immortalized himself by moving to lay the whole subject on the table, which it is needless to say was lost.

"On motion the preamble and resolutions were then adopted as a whole.

"I should say that Prof. Antisell was indignant in regard to the summary manner in which his report was disposed of by the association, and although I don't know that he expressed himself to any one but myself in reference to it. He refused to give it to the committee on publication. Not wishing that the paper should be entirely lost, I had it referred to the section on Surgery and Anatomy for the discussion, but for some reasons Dr. Antisell, I believed failed to appear. This ended a memorable event in the history of Veterinary education.

"In 1872 in Philadelphia, desirous to keep the subject of Veterinary Education warm and before the medical profession, I offered the following:

"Whereas. It has long since been recognized that diseases of a dangerous and fatal nature are transferable from animals to man, and that certain zymotic affections which are common to both man and animals, do very frequently manifest themselves first in the latter, and subsequently on man. Thus warning us that to be indifferent to the condition of the inferior animals, is to introduce and create centres of disease amongst ourselves.

"Resolved that a committee be appointed to ascertain what measures can be instituted to prevent the extension of such diseases to man? And what sanitary measures can be effected to arrest the progress of such diseases in animals? Carried.

"The President appointed as a committee—Dr. A. Stein of New York, Dr. G. Sutton of Indiana, Dr. S. D. Gross of Pennsylvania, I regret that because of the distance, the next meeting being at St. Louis, I was unable to be present and presume the matter went by default." This Gentlemen, was in 1872. This committee has not yet been discharged—where is the report? To us Veterinarians belongs the final task to make the inquiry, as though there was much difficulty in carrying the motion

through, still it was carried. And that shows that it is amongst physicians that we are likely to receive greater assistance and recognition than anywhere else, and certainly we could not address ourselves to a more honorable or important body. Our own people, those whose interest we protect, the Agriculturalists, had for some reason or other declined our offer. At the suggestion of Dr. Liautard in 1872, after the resolutions adopted in 1870, by the American Veterinary Medical Association, the N. Y. C. V. S. directed to the Officers of each State and County Medical Society, and to the Officers of each State and County Agricultural Associations, circulars offering one full and one-half Scholarships to the different societies and associations,—and, must I say it, this generous offer of the faculty of the New York College of Veterinary Surgeons was not noticed,—not a single answer, not a single response to the call.

But then Gentlemen we are brought down to our own later days; we have seen that slowly but surely the interest in Veterinary Medicine has increased, and no doubt the New York College of Veterinary Surgeons has done much to advance the profession in this Country. How unfortunate it was, as I already stated its life was cut short; we have seen how after ten year's hard labor, the faculty were obliged to resign. And now we have arrived at 1875, in March at the end of the last Session, when our graduates are receiving the last diplomas of their dying Almamater, and with this, rises another school—the American Veterinary College.

Encouraged by the success which had rewarded their efforts, and especially satisfied of the importance of such an institution, and of the certain success which would follow if properly managed, and above all if worked with a professional and not a personal interest in view, and well prepared by their ten years previous labor, the different members of the faculty of the old school at once made up their minds to continue the attempt. As soon as they left the N. Y. C. V. S., they induced gentlemen to organize a Board of Trustees and to apply for a charter for the American Veterinary College.

• This Charter was obtained through the general law of the State of New York, passed in 1848, and amended in 1870, which gave the Supreme Court the right to grant charters to Medical Institutions, etc., and in April of the same year two months after the close of the old school, the American Veterinary College issued their first circulars with an increased corps of teachers. Professors Liautard, Large, Robertson, Stein, Weisse, Percy and Satterlee filling the different chairs.

Gentlemen, we have seen those names already and they must remain connected with the history of our profession. It would not become me to remind you of what little I have done, but the others must certainly find their place amongst the first in establishing Veterinary Schools in America. If the N. Y. C. V. S. owed its birth to an act of legislature obtained through the exertions of Dr. John Busteed, to the faculty it owed its life of ten years. Speaking of the American Veterinary College, Fleming says it is the old school *rejunie*,—this is very true.

Opening in a new building, purchased for that purpose by Dr. Liautard, who, after fitting it up for Hospital purposes, with lecture and dissecting rooms, offered it for the use of the faculty, it possesses all the accommodations which are necessary in such an undertaking.

Dr. Liautard's collection of over six hundred Anatomical and Pathological specimens is of great value to illustrate the lectures, and the Museum of the College proper, which by the way, is formed by donations from different members of the profession all over the country, is called to form one of the finest exhibitions on the Continent. A library is also to be collected with the assistance of the Alumni of the school.

Amongst the great inducements to the students is the continuation of the free clinics, which I had started three years ago at the New York Veterinary Dispensary. These clinics which are held free of charge to the poor twice a week, bring before the class all forms of diseases in their different stages.

At the opening of the first session, the class which had been left the previous spring, at the old school was soon increased by new comers, and this proved well enough, that the step taken was not a wrong one, and that the efforts of the Board of Professors were fully appreciated—during that first session, twenty Matriculants occupied seats in the lecture room, and all the old students came to finish their studies.

At the end of the session A. A. Holcombe of New Jersey, J. S. Saunders of Massachusetts, C. W. Crowley of Illinois; and Jas. Corlies of New Jersey, became Alumni of the College, and soon were joined by some of our graduates of the old school, who made application, and were granted *ad eundem* Diplomas. J. L. Robertson of New York, C. Mitchener of New Jersey, J. D. Hopkins of New York, R. P. Blakely of New York, L. T. Bell of Virginia, C. H. Stocker of Massachusetts, J. Myers of Ohio, P. Nostrand of New York, E. Travers of New York, J. B. Cosgrove of Massachusetts, C. Burden of New York, and W. Dougherty of New York.

To-day, at the moment of opening its second session the American Veterinary College is in glorious condition, and promises to be a permanent and successful Institution.

Towards the end of 1874, the Veterinarians of New York City organized themselves into a society, which it is to be hoped will form a good nucleus for a State Association.

In 1875, gratifying news came to us from the West, from St. Louis, a rumor which had found its way into the papers, had become a reality. The St. Louis Veterinary College was incorporated and ready to admit students. From the circular which it has issued, it seems to be covering a curriculum somewhat analogous to that of the American Veterinary College, though it does not give any of the requirements for graduation. The faculty is composed of five physicians, and two Veterinary Practitioners. To that new school let us wish success.

This general review shows us that the importance of the Veterinary Science is well understood by the Agricultural Institutions of this continent, and their teachings must necessarily prove beneficial to the profession. We have but two schools it is true where all the branches are taken up, but it is to be hoped that before many years others will have sprung up all over the land.

In the way of the American Veterinary College there is but one fear, and it is that by many and with some reason it is considered a private undertaking, and whether as such it can succeed or not is a question which time alone can solve. Still I may be allowed to say, that I feel satisfied, even with this drawback, that this Institution will keep on doing its noble work, and exert itself to the utmost to rivalize, but be friendly with any others which will have in view the same object, viz., the cultivation and elevation of Veterinary Medicine, the protection of the health of the Country represented by its live stock.

In relation to Military Veterinary Science in the United States, I have but little to say. As poor as the position of the Veterinarian is in the European Armies, it is worse in the United States. By an act of the War Department of March 30th, 1863, each regiment of cavalry was allowed one Veterinary Surgeon with the rank of sergeant-major, and a fixed compensation of seventy-five dollars per month. This act was

amended by another of July 28th, 1866, by which a Veterinary Surgeon is to be attached to each regiment, with a compensation of one hundred dollars per month. In the army register it is erroneously stated that the veterinarians are reckoned amongst the enlisted men, and not amongst the officers. Veterinary Surgeons are appointed by the Secretary of War, and I am informed by the Chief Clerk of the War Department are considered civilians.

There are ten regiments of cavalry and five of artillery in the United States Army, and still only nine Veterinary Surgeons are on duty.

Now, to finish, one word as to the literature of American Veterinary Medicine—we are told that at Washington, in the Agricultural Department, many Works are found relating to the Veterinary art. But we know those to be mostly of European origin. Amongst the American Works of more or less value, we find that of James Carver in 1818, of R. H. Budd in 1831, of Dadd in 1856; his Anatomy, his Veterinary Journal, his Modern Horse Doctor. Besides these, we have the publications of R. Jennings and McClure on practice; the American Farrier of W. C. Holme in 1852. Hints to Breeders by Herbert in 1859; the translation of Geunon Milch Cows, by N. P. Trisk in 1862; the American Farmer's Horse by Robert Stewart, M. D. V. S. in 1866; the Percheron Horse by Chas. Du Hays in 1868; the American Cattle, History, Breeding, etc., by L. F. Allen in the same year; the Appendix to Stonehenge by A. Large in 1869; J. Harris on the Pig, 1870; J. A. Reason on the Hog about the same time; Hanover on the law of Horses in 1872; with a second edition in 1875; Bouley's Hydrophobia, translated by A. F. Liautard in 1874; and last, but not least, the Farmer's Veterinary Adviser by J. Law in 1876.

Probably many others have been printed and may be collected in the library of Agricultural investigations.

Now gentlemen I have done; I tried in this paper which I regret to say has kept your attention longer than I expected, to show you the progress of Veterinary Medicine in the United States, and to impress your mind with what little changes have taken place since Independence day.

Still we must be satisfied; by degrees, the Veterinarian of education comes ahead, and though it may be many years yet before the "Professional Veterinarian and the Veterinary Professor," the "Homeopathic Veterinary Surgeon,"—"the one who trains colts"—"the Homeopathic Mesmeric and Psychological Veterinary Surgeon," "the Alopathic and Homoepathic Veterinary Surgeon," "the Voluntary Edidemo-Zoological Missionary," "the Horse Dentist," who performs dental operations on horses satisfactory to horse and owner—before all these unscrupulous empirics are prevented from prostituting our noble profession; there is for us but one thing to do, look, keep up to the work, watch, and remain united, as we are to day.

If *Union Means Strength*, the influence that a meeting such as the one held now in this room by the United States Veterinary Medical Association must be of a great weight in the future advancement of Veterinary Medicine in the United States.

ZYMOTIC DISEASES.

Impressed as I am with a sense of the great national importance of a better attention to the Zymotic diseases of animals, I feel that as a body representative of the Veterinary Profession, we would be untrue to ourselves and the nations of North America if we failed to give out an earnest statement on this subject. In offering a few hurried words on this topic, I prefer to use the word *Zymotic* rather than *contagious* or *infectious*, seeing that in spite of its acknowledged drawbacks, it embraces all affections in which there is danger from proximity of the sick and healthy, and that it is not so restricted in meaning as to exclude the parasitic or the strictly inoculable diseases as might be the case with the other terms. I would seek in my general remarks to cover whatever diseases as are transmissible from animal to animal, and which therefore tend to diminish the numbers and impair the excellency of our flocks and herds, to reduce the wealth of the nation, or to undermine the health and vigor of the people.

Such a statement is a simple act of justice to ourselves, since with a large proportion of the community, our profession is regarded as exhausting its functions in the mere employment of drugs and blisters and in the performance of a limited number of surgical operations. How often is the recommendation to destroy a useless and dangerous animal met by the assertion that our business is to cure—not to kill.

That a statement of this kind is an act of justice to the governments and peoples is but too sadly apparent in the bitter experience of Great Britain, Holland and other countries that, in their hour of danger openly sneered at what they were pleased to call "the logic of the pole axe," and cast contempt on their accomplished veterinarians when they offered the only rational and economical system of prevention.

Estimates have been made of the hundreds of millions lost to Europe, at frequent intervals as the result of the diffusion of one or two animal plagues, but who will ever compute the aggregate losses endured in the depreciated but non fatal cases, in the loss of the prospective progeny of valuable races, in the imperfect harvests consequent on the deficient manuring, tillage and preservation of the crops owing to the inadequacy of the surviving stock, and in the deterioration of human health in connexion with the insufficient yield of the soil? And who will tell the destruction incident to parasitic and other affections, which, in times past failed to be recognized, and were therefore allowed to spread without let or hindrance? Even with educated men there is no proper knowledge nor appreciation of this subject. Usually they are steeped in the profoundest ignorance of the whole matter. Too often when an attempt is made to enlighten them, they repeat the act of the hunted and hopeless ostrich, and seek to ignore and shut out of sight the peril, of the existence of which their judgment is being convinced. Concluding that "where ignorance is bliss 'tis folly to be wise," they esteem it happier to risk the myriad surrounding dangers, than to render life miserable by a constant apprehension of lurking enemies, where they have been hitherto unsuspected.

Our task then is a thankless one, but are we thereby exonerated from the duty of uttering a solemn warning? Verily no. It has been the experience of all prophets and teachers since the world began, that they first met with deaf ears, and finally, if they

persevered, with abuse and persecution. Yet those neglected, despised and abused personages have been the true benefactors of humanity, and almost every step in human progress has been heralded by their voluntary personal immolations.

Our case is all the harder, that those who are devoid of the not unnatural repugnance I have referred to, and on whom the work of restricting animal plagues is usually imposed in this country—the physicians—have rarely any just appreciation of the magnitude and importance of the subject. In a Bill introduced into Congress in 1872, and prepared by an eminent physician and sanitarian, the diseases of animals named, as specially demanding investigation and supervision are “cattle plague, rot in sheep, and cerebro-spinal meningitis in horses.” Now I might fairly ask why name for special investigation *Rinderpest*, which has never been seen on the American Continent? Why *rot in sheep*, of the existence of which in America I can find no reliable proof? And why cerebro-spinal meningitis—an American malady truly, but one that is probably not at all communicable from animal to animal? But what of the long list of transmissible diseases which are already decimating the flocks and herds of this country? And what of the further list which, prevailing in other lands, are liable at any time to be imported into our midst?

I find that there are from fifty to one hundred communicable affections prevalent among domestic animals, that demand more or less concerted efforts for their extinction or restriction. Let me enumerate some of these:—*among horses* we have glanders, farcy, malignant disease of the genitals, horse-pox, strangles, influenza, the different forms of acariasis (mange) from *Sarcoptes equi*, *S. mutans*, dermatodectes, and dermatophagus, ringworm in its various forms,—*trichophyton*, *achorion*, *microsporon* and *odium*—*pontastomata* in the nasal chambers, *strongyli* in the lungs and lower air passages, the *oxyurida* and *sclerostomata* in the bowels, and in the case of the latter in the blood-vessels as well:—*Among Cattle* are cowpox, aphthous fever, rinderpest, lung fever, Texan fever, enzootic abortion, lung worms, *echinococcus*, *cysticercus mediocanellata*, intestinal round and tape worms such as live also in sheep, flukes, mange from dermatodectes and dermatophagus, and ring-worm in its different forms:—*in sheep* are sheep-pox, aphthous fever, rinderpest, foot-rot, flukes, *cysticercus*, lungworms, *cœnurus cerebrialis*, *tænia dentata*, intestinal round worms—mainly *Strongylus contortus*, *S. filicollis*, *ascaris ovis* and *tricocephalus affinis*,—*pentastomata* in the mesenteric glands, and the different forms of scab from the presence of the various acari:—*in Hogs* are swine-pox, intestinal fever, aphthous fever, lung worms, *echinorhynchus*, *stephanurus*, *strongylus gigas*, *trichina*, *tricocephalus crenatus*, *ascaris suis*, *echinococcus*, *cysticercus cellulosa* and sarcoptic mange:—*in Dogs* are canine distemper, rabies, dog-pox, *Tænia cœnurus* *T. echinococcus*, *T. marginata*, *pentastoma*, mange and ring-worm:—*in Chickens* are gapes, dysentery, mange, ring-worm, &c.; finally all are subject to malignant anthrax, malignant cholera and tuberculosis.

Such are the main but by no means the whole of the communicable diseases of the domestic animals. Is it not of the highest importance that the public, and especially the medical public, and the legislators should be apprised of these many unsuspected sources of national suffering and loss? The present absence of governmental protection against these diseases and their consequences, is only to be excused on the ground of the blank ignorance of our legislative assemblies. When a bill for the prevention of contagious diseases in animals was recently brought into the N. Y. Legislature, an honorable member, and I regret to say, a physician, affirmed most positively that there was no such thing as contagious pleuro-pneumonia, and by his vehemence and the credit

attachable to him as a member of the medical profession, he largely contributed to the defeat of the measure. New York accordingly still groans under her imported and indigenous diseases. It is a matter of frequent observation with me that glandered horses are preserved for years, exposed in all sorts of public places and highways, kept in livery stables, sold or traded to unsuspecting persons and worked on thrashing machines which are travelled over the country, bringing them in daily contact with new and healthy studs, the stalls, mangers and buckets of which they share, to the deadly peril alike of the beasts and their masters. Intestinal fever of swine is frequently imported, proving fatal to whole herds and rendering the hog-pens untenable. Texan fever has recently devastated three separate localities in the centre of the state, and I believe I am correct in stating that the dairies of the metropolitan city herself, are still being ravaged by that insidious foe, of the mythical nature of which our medical member of assembly felt so confident. Yet in the face of all this and much more our Executive is legally helpless.

Now the people must be instructed in these matters, and it is our duty in particular to lay the matter before them. We must not leave our physicians in a position to honestly plead ignorance when they have placed in jeopardy their reputations as men of science, and discredited their profession by denying pathological facts of the most notorious kind. We must place before them in the shortest and plainest terms the history of these diseases, and show what momentous questions in political economy are involved in their characteristic of communicability from animal to animal. We must show, in reference to the *lung fever* for example, that it was unwittingly described by Lancisi Kanold, Ramazzini and others as prevailing extensively in Europe in connection with Rinderpest in the early part of the last century, having been propagated by the same cause, namely, contagion from the travelling commissariat parks of the armies in the field. We must show them how the immortal Haller testified to its dangerously contagious properties, as seen by him in the Jura mountains at that period. We must show how it invaded Ireland in 1839-40, and England in 1842, in the bodies of Dutch cattle, and has prevailed in these countries uninterruptedly since, ravaging especially those parts into which foreign cattle or those from the large fairs are brought, and avoiding localities, no matter how cold and exposed, into which strange cattle are never taken, but where the whole supply is by the natural increase of the native stock. We must show how it reached the Cape of Good Hope and Australia by imported cattle, destroying stock almost beyond computation, and how it is still proceeding on its career of destruction. We must tell how it was imported into New York in 1843 and 1850 by Dutch and English cows, and has since silently spread over nearly our whole eastern seaboard.

On the other hand we must illustrate how the exclusively breeding districts in even the most plague-ravaged states have escaped, just so far as they have avoided the purchase and introduction of strange stock, as exemplified in Great Britain before the Free Trade Act of 1842, and in many parts of the Scottish Highlands, the Cheviots, the Channel Islands, Spain, Portugal and Normandy, up to the present time. We must show further, how in certain states in which it had gained a footing—as in Sweeden, Norway, Denmark, Schleswig, Oldenburg, Switzerland, Massachusetts, Connecticut and New Jersey—it was stamped out, and definitely excluded, by the destruction of the sick, and the adoption of thorough measures of segregation and disinfection. We must illustrate how Europe has lost thousands of millions from this disease, and how certain we too are to suffer in equal ratio, if we neglect the pestilence until it reaches our great Southern and Western stock ranges, the great source of supply for all our Eastern markets

Rinderpest though happily unknown on our Continent has cost Europe, Asia and Africa many thousands of millions of dollars. Recently in England alone it swept off stock of the value of \$40,000,000, in the short space of eighteen months. And what is there to protect us from a worse experience, while we are at liberty to import hides, hair, wool and other products from all parts of the world, and while live stock are to be admitted on the certificate of an American Consul alleging that he believed them sound at the period of embarkation? Our executive are manifestly ignorant of the fact that animals may be shipped in the finest health apparently, yet with the seeds of the most fatal contagious diseases within them, which germs will develop with the most destructive results at a later period. It seems the hardest of lessons to learn that a square plug will not stop a round hole, and that the most accomplished and truest of men will only blunder if we set them to decide a question in a science, the rudiments of which they are ignorant.

Similar to *Rinderpest* is *Sheep-Pox*. Often and disastrously has it prevailed in Asia and Europe, and that it has not sooner reached us may be attributed rather to a fortunate chapter of accidents, than to any sufficient precautions against its importation in sheep, hides, wool, catgut and other products.

The *Malignant disease of the genitals* is another of the exotic maladies of Asia and Europe, which may be imported at any time, and the advent of which is all the more likely that it may exist for a length of time in the system without any external manifestation, which would rouse the suspicion of the ordinary observer. In this respect it resembles lung fever, the germs of which may remain, for over two months, latent in the system, and the infected subject may meanwhile cross both the Atlantic and American Continent, and arrive in the remotest states, in the finest apparent health. It is these insidious diseases that above all demand a careful examination, and quarantine of imported animals; for the promptly fatal maladies, such as *Rinderpest*, *Sheep-pox*, porcine intestinal fever, Texas fever, malignant anthrax, malignant cholera, &c., rouse at once a panic in the community and insure some action in the premises. But lung fever crept unawares into the country and continues to lurk comparatively unnoticed among the herds of New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia and District of Columbia, but ready to burst out with deadly effect, so soon as it reaches our stock-raising regions and can spread with the busy currents of cattle traffic to the different states of the Union. So with the malignant disease of the genital organs; once introduced—and nothing is easier or more likely—and it would lurk unsuspected for weeks or months in the bodies of mares and stallions, steadily extending by the act of coition, and infecting whole regions with a fatal disorder, all the more dangerous that in its early stages it would escape general observation, though virulently infecting from the outset.

The *Exotic Aphthous fever*, though comparatively lacking in records of mortality, is scarcely less to be dreaded and guarded against. The loss of condition and milk from this disease, varying from \$5 to \$20 per head in cattle, is no small item when we take into account the extreme virulence of the contagion, and how rare it is for an exposed beast to escape. But to this must be added the occasionally permanent injury to the feet, to the udder, and to the womb and product of conception, which very materially enhances the loss. And we must further take into account that all cloven-footed animals are as susceptible as cattle and suffer in the same proportion, while other genera of animals and human beings even are obnoxious to the virus, and in case of the young fed on the warm milk, suffer often to a fatal extent.

If we turn to our indigenous animal contagia, we find the matter quite as bad. *Porcine intestinal fever*, the so-called hog cholera, has almost ruined the stock-owners in some of our best pork raising states. Within the last year complaints have come from all directions that hogs have been dying by hundreds, and nothing can be found to arrest the scourge. To show how extensive the losses have been, I may quote the conclusion of an eminent Iowa banker, a careful financier, and the least likely of all men to be astray in his figures, that in his county alone over \$100,000 had been lost by the disease in swine during the year. Others have estimated that one-fourth of the hog crops of the West has been cut off in this way within the year. If then to allow an ample margin, we take but one-eighth of the hogs reported in the last census from our main pork producing states, 3,000,000, and estimate these at \$5 per head, we reach a sum of \$15,000,000 loss in a single year from this pestilence alone.

Come to *Texas fever* and we are confronted by a very similar state of things. The losses from this affection have never been estimated to my knowledge. When they have become excessive as in 1868, a panic has ensued, which has led to a temporary exclusion of Gulf-Coast cattle from the Northern States during the heat of the summer; but with an immunity of one or two years effacing the apprehension, and a further extension of railroads, permitting of the transit of the Southern cattle through the Middle states without unloading, and Texas cattle are again carried to our extreme northern boundaries during the hot seasons, forming numerous centres of contagion and mortality, from which all cattle must be carefully secluded until the approach of winter. The latest instances of this kind, in the extreme north that have come to my knowledge consist in extensive losses in the City of Detroit, in central New York, and in Worcester, Mass., within a few weeks past.

We may flatter ourselves as we will of the sufficiency of local and State restrictions in checking the progress of this malady, but we will never place these restrictions on a permanently satisfactory and economical basis until we have them instituted, and carried out by the Central Government for the protection of the States at large. It is useless and worse to plead State rights as a barrier in a matter of this kind. No state has the right to make herself the highway for the transmission of a plague, which will devastate and ruin a neighboring commonwealth. It has been decided at the cannon's mouth that no such right shall entitle any State or group of States to secede from the Union and no less imperative is it that no State rights shall be exercised to undermine and destroy our agricultural interests, the only solid and lasting foundation of all our varied industries and of our national wealth.

The importance of stringent legislation for the extinction of *glanders* and *farcy* will hardly be disputed by any one at all conversant with the subject. Though they are I believe, perceptibly less virulent in the drier climate of North America than in Great Britain, and though permanent recoveries are not so rare, yet the prospect of cure will never warrant treatment when the glanderous deposits are softened and discharging, and especially in view of the danger of the loathsome infection implicating other solipeds, other genera of animals, and above all the human being himself. And yet in New York, as I have already stated, I have been compelled to witness the subjects of chronic glanders, again and again stalled in public stables, used on public highways, watered from public troughs, depositing the *materies morbi* on every object they touched with their muzzles, and snorting it out all around in their frequent endeavors to clear the nose and when the matter became too notorious I have had to look on helplessly, while the source of all the trouble has been conveyed away to new and unsuspecting communities

to diffuse disease and death in their most loathsome forms to man and beast. Against this we have no legal protection—no means of putting a stop to such immoral, inhuman, homicidal practices. Redress is only to be sought and obtained after the injury has been sustained. Is such a state of things worthy of an enlightened community, boasting of the universal education, and intelligence of its citizens, of its advanced position in the arts and sciences, of its century of personal freedom, and the maintenance of human rights, of its large hearted philanthropy and its christian civilization?

Canine madness will be universally relegated to the same category. What if it should be found that a Hungarian plant is a specific in the majority of cases, what man in his senses would preserve even for a day a dog that is unquestionably mad, with even the remote probability of infecting man with this terrible disorder? The same consideration would demand the strictest supervision of all dogs, in all localities, and the general diffusion of information on the preliminary symptoms of rabies.

To be classed with these is *malignant anthrax* to which all domestic animals are liable, and which so frequently and fatally infects the human being himself. It is greatly to be desired that all malarious and unhealthy regions should be drained and rendered salubrious, but the wish is vain, in the present state of the nation. Nevertheless much may be done in the way of instructing stockowners how to avoid such places in the more dangerous seasons, when heat and dryness have induced decay to an unusual depth in the soil, when the blood of the animals is loaded with excess of organic matter, whether plastic or excrementitious, and when the excessive alternations of temperature in day and night, tend to disturb the balance of function, and lay the system open to disease. They must be instructed to avoid as far as possible all contact with the skins, blood, or other products of the victims of the malady, and to employ disinfectants after every inevitable contact. Above all should the places where the sick had been, the graves, &c. be thoroughly disinfected under professional supervision. Last year it was my experience to see in a single outbreak of *malignant anthrax* the communication of the disease to three men, in two of whom it would probably have proved fatal, but for the prompt and thorough treatment resorted to by the surgeon whom they consulted. Other isolated cases are continually occurring, and though we do not repeat the experience of Egypt in the time of Moses when boils and blains cut off man and beast, nor of the agriculturally undeveloped countries of Europe in the middle ages, when the human and brute populations alike were decimated by these diseases, nor that of St. Domingo where 1400 persons perished in six weeks, in the last century, nor even that of the flat swampy provinces of Russia, where the Siberian Boil Plague yearly claims its hecatombs of victims, yet we have our scores of human victims yearly, and we have the poison preserved in fodder, pastures, yards and buildings to break out with destructive effects at some future period.

Yearly we suffer untold losses in various states from *enzootic abortion in cows*. Herds, and whole counties almost, are rendered comparatively useless or unremunerative, and this continues from year to year, until the malady has manifestly exhausted itself, after which the formerly affected animals are spared, but there is no extinction of the disease, which meanwhile shows itself in all newly purchased or young animals that have not already suffered. It will be retorted that our science has no provision for the extinction of this disease. It is true that no investigation has been successful in laying bare the secret of the malady, and nearly all theories, whether of ergotism, early breeding, excessive milking, exhaustion of the soil, urinary disorder, &c. have been in turn disproved by the inexorable logic of facts, yet the need is all the greater, that a thorough

investigation conducted by competent scientific men, with ample means at their disposal for experimental research, should be instituted by the General Government, by a State or by a Dairymen's Convention. No such investigation has to my knowledge been placed in the hands of Veterinarians, and no committee of any kind has been empowered to resort to experiment.

There is a wide spread feeling that such investigation is the duty of the State Agricultural Colleges through their Veterinary Chairs, but this argues a most imperfect apprehension of the subject. All such colleges are already suffering from want of means to carry on their course of instruction, and not one has the money to spare for the purchase and maintenance of experimental animals and stables, under the careful supervision necessary for scientific accuracy. Stockowners may as well be told that there is no royal road to scientific discovery, but that the ascertaining of facts experimentally under conditions carefully adjusted to exclude all conceivable sources of fallacy, is the one mode which is in keeping with the demands of modern science. It is the one too which promises the best results, at the smallest pecuniary outlay, however expensive the preliminary outlay may appear. Without this, there is too much of the *post hoc, ergo propter hoc* in our supposed discoveries, and we will be constantly reminded that they are but partial truths after all, as subsequent occurrences in different attending conditions, will continue to invalidate their supposed primary significance. Such an investigation to be at once economical and full of promise, should be conducted by those who are alike intimately acquainted with scientific methods, and with the present state of veterinary pathology; as they must otherwise be much less prompt and certain in their results and liable to far more unexpected drawbacks, and fallacious conclusions. While it must be confessed that many valuable discoveries have been made by accident or intuition, the experimental mode alone is scientific, and will place the results on a solid and enduring foundation. Let then the necessary means be provided and veterinarians will not be wanting in the will, nor devotion necessary to conduct the investigation.

Contagious Foot-rot in Sheep may be placed in the same category with abortion. In some States the destruction caused by this disease has become enormous. A few years ago it was so prevalent in Iowa that sheep became almost worthless, and many flock-masters were ready to part with their property on almost any terms. Those flocks only escaped which were secluded in the home pastures and kept off the ground on which the diseased had been. Even now, after the lapse of six years from the definite extinction of the malady, its influence is seriously felt in the great diminution of flocks within the area of former infection. Such an affection is a legitimate subject of legislative control, though from the comparatively fixed nature of its contagion it only spreads under given and easy avoidable conditions.

Tuberculosis must now be accepted as a communicable disease, conveyable by inoculation or the ingestion of the tubercle. I will not try your patience by recounting the proofs of this, but taking these for granted, will merely indicate the extreme danger to our most valuable herds from the introduction of a tuberculous animal—and many of our most highly prized races are already infected—and the further danger to man from eating the underdone meat or even drinking the warm milk of some of these cows. The momentous interests involved in this question are almost incalculable. The conceivable destruction of infancy and wasting of manhood, may well demand a prompt and crucial investigation, and unless the transmission of the disease by the channels just mentioned is negatived, the further adoption of the most stringent measures for the restriction of the malady, and the preservation of the community is imperative.

Even in regard to *Strangles* and *Influenza* readily diffusible as they are, there may arise conditions, in which from the limited area of their prevalence, or the favorable circumstances for imposing a barrier, we will be justified in repeating the experience of Vancouver's Island, Prince Edward's Island, La Paz, Key West, and all the West Indies except Cuba, and in extinguishing or excluding the poison to the incalculable benefit of the Country.

But in conclusion I must briefly refer to a class of communicable diseases which have received too little attention at the hands of sanitarians. I allude to the *parasitic affections*.

No one disputes the need of legislative action in reference to the different forms of acariasis (mange) in the domestic animals. I may therefore pass these over without further remark. Of *ringworm* something might be said, but considering its general amenability to treatment I will dismiss this subject also.

But when we come to the *entozoa* we find a strange absence of even the advocacy of preventive measures. In some large cities it is true the pork is inspected for *trichina* and *cysticercus* (measles.) But why in the name of common sense should we continue to lop off the terminal twigs, of this upas, and not bethink ourselves to strike at the root? Nothing would be easier, in the majority of cases, than to trace the trichinous pig to its pen, to slaughter and microscopically test all that have been kept in the same locality, to thoroughly destroy the germs even by the incineration of the wood work if necessary, and to secure and burn up all the rats and mice and if found infested all cats and dogs in the vicinity. Nor would it be more difficult to follow up the *measly hog*, to find with what human beings he had been reciprocating in an exchange of guests, to expel and destroy all the tapeworms from man, and to remove all hog-pens far from infested localities.

What is to hinder our adopting similar measures, looking toward the extinction of the *lung worms* of horses, cattle, sheep, swine and poultry, of the deadly *sclerostomata* of the horse, of the *tape worms* of cattle and sheep, of the *Strongylus filicolis*, *S. Contortus*, *tricocephalus affinis*, *ascaris ovis*, and other destructive intestinal round worms of the sheep, of the *Tænia cænurus*, *T. echinococcus*, *T. marginata* and other less hurtful tapeworms of the dog, of the *cysticercus mediocanellata* of the ox, of the *stephanurus dentatus*, the *ascaris suis*, the *tricocephalus crenatus*, the *giant echinorhynchus*, and other entozoa of the hog, and the *distomum lanceolatum* and *fasciola hepatica* of the domestic animals generally when placed upon wet pastures. Each of these is capable of producing an enzootic or even an epizootic, when the animals that reciprocate with each other in sustaining the parasite at its different stages abound in the same neighborhood, or when a sufficiency of suitable animal hosts and an environment of soil, vegetation and water favor their development and increase.

We all know how in wet seasons the *liver rot* has destroyed hundreds of millions of sheep in Europe, how it has repeatedly laid England under a contribution of 3,000,000 head and upward in a single year, and how it has recently devastated the plains of Victoria, where the parasites were introduced in the bodies of German rams. We know how England is now almost infested throughout with the lung worms in cattle and sheep, and what ruinous loss of condition and life occur yearly to the young animals from this cause, and I may add that in several of our Western States devoted to the raising of sheep the condition of things is not much better. Last winter in a lecture before the N. Y. State Agricultural Society, I predicted that unless some protective measures were taken, our sheep runs would soon be in the same condition as those of

England in regard to these worms. Within a week thereafter I had information from different counties of Illinois and Iowa of the almost universal prevalence of the parasites in question, and of the consequent frightful mortality in lambs. One Iowa flockmaster wrote me that his county contained 100,000 head fewer sheep than it had done seven years before, though nobody had suspected the true cause of the mortality until my remarks came under his notice. By way of corroboration I was sent many fine specimens of the small lung strongyles of sheep. I have not yet seen the long species in America. Here in a single County we have a loss of sheep to the value of not less than \$300,000 in place of the natural yearly increase to double their numbers. Will this not abundantly justify the expense of prophylactic measures?

Recently I saw in a prominent agricultural paper an advice tendered to a farmer to improve the feed of his anæmic sheep and give tonics. To test the true cause of the bloodlessness, I dropped a line to the farmer in question, and by return mail I received large bundles of the *tænia dentata* which he had found in the bowels of a single lamb. With us as with the Australians and Germans enormous losses are yearly sustained from the prevalence of these intestinal tapeworms; as well as from round worms in the bowels of sheep. The success or insuccess of sheep husbandry is often determined by the absence or presence of these parasites, and their neglect bids fair to lead to the abandonment of many of the best wool-growing districts, either to nature or to less remunerative culture.

In Swine I have known *Intestinal worms* to induce fatal palpitations, diarrhœas, and enteritis, and *lung worms* to prove as injurious as in calves, so that in this whole class of verminous diseases there is ample scope for restrictive measures and abundant promise of good results.

I have called this the true work of the Veterinarian. I have said that no one can accomplish it so promptly, so cheaply and so well as the accomplished veterinary pathologist. Even as private practitioners we can do much in giving to the stockowner advice which will enable him to obviate much of the danger. This we will do if we would be true to ourselves, our profession and humanity. But in fulfilling this duty, we must never forget the greater possibilities, the incomparably more beneficial, because more thorough, fundamental and lasting good which may be accomplished by a wise and vigorous action of the government, for the restriction and extinction of animal plagues. Let us not shrink then from our duty in this respect also. Let us sound the note of warning, let us tell the nation of the evils that beset it, that are ever increasing and closing around it, and even if our voice remains unheeded, if pestilence and destruction are allowed to overrun the land and to undo our prospects of a permanent high, national prosperity, we will at least have the consolation of an approving conscience, and will in the end be duly credited with having advocated a system which is at once sound, economical and beneficent.

STIMULANTS IN DISEASE.

When I accepted the proffered honor of reading an article before this meeting of the association as representative from the State of New Jersey, I was hardly aware of the injustice I was doing the other members of the profession, and can only warn you not to judge of the advancement of Veterinary Medical Science in my adopted State, by the deficient knowledge of her representative here to-day. Being but a recent graduate upon whose Diploma the ink is hardly yet dry, and whose experience must consequently be very limited, you will not expect from me an article, fraught with the knowledge and experience of men who have practiced for years, and who have or will read to you during this meeting. I highly appreciated the privilege my nomination granted me, for I had no hope of reading before this association in 1976, and I was only too anxious to accept a position which common sense told me was higher than I could, with any credit to myself, my profession or my State, fill.

I assure you now that I shall not attempt to tell you anything new, or anything you do not already know, but shall simply reiterate the results of other people's research into the action of "*Stimulants in Disease*."

The field of knowledge covered by this subject is so great that I did not know where to commence, and finally got lost in trying to comprehend only a small portion of it.

As works upon the action of Veterinary Medicines are so limited in the English language, and experience has taught me so little, I have looked for most of my information in the works upon Human Medicines. The medicines which I shall speak of in particular are *special stimulants*, Digitalis, Belladonna and Strychnia; while I shall speak to a limited extent upon Alcohol and Ammonia as typical "*General Stimulants*."

A few years ago stimulants were almost unknown in the treatment of diseases, and more especially in the treatment of *fevers*. When it was fashionable, and no doubt necessary for every practitioner to carry a lance in his vest pocket; when every patient must be bled and physicked without any regard to the nature of his malady; when Mercury, Opium or Tartar Emetic were sheet-anchors in the treatment of almost every ailment; probably more stimulants were used at an association meeting or big dinner than in combatting disease.

Of course the knowledge the profession had at that time of the pathology of many diseases, notably the *fevers*, was very meagre as compared with the pathological knowledge of these diseases, as obtained from time to time, and in possession of the profession at the present time.

It is not to be expected that a disease will be treated upon any scientific principle when its nature is an entire mystery. Neither is it to be expected that a just appreciation of the use of drugs can be entertained by men who do not know their action nor the indications for their use.

We sometimes feel inclined to smile when we remember that only a few years ago the lance would have been the first resort in treating a case which to day we stimulate

from the very inception of the disease ; yet had we lived at that time, or had science failed to make any advancement, we undoubtedly would do just as they did, while it is *more than possible* that future generations will look with the *same compassion* upon our very deficient knowledge of the action of medicine, as *we* entertain for those who have gone before us.

Many of the old landmarks in the treatment of disease, are, if not rapidly, surely passing away. Among those now numbered with the things of the past preeminently stands bleeding. Many of the members present no doubt well remember when they bled the patient that was plethoric, and the one that was anaemic ; whether there was a full hard pulse, or a soft and weak one, whether he had a disease which would render him unable to stand from debility, or whether it was a disease that would never cause death, it mattered not—the indications as then considered were for bleeding and the operation was accordingly performed. That such indiscriminate use of the lance must necessarily do very much harm, and as a common remedial agent lose its wonted popularity, is fully attested by the prejudice existing in the mind of the public against the use of this once much abused remedy. I think each year finds us giving to stimulants a higher and still higher position upon the roll of medicine used in veterinary practice. In those diseases for which we have no specific, and that cannot be cut short by remedy, but must run a regular course ; those diseases which tend to destroy life by wearing out the strength of the patient before nature has carried him beyond the point of danger, stimulants are now come to be used and recognized as of the utmost importance in assisting nature to support the failing strength until the critical period is safely passed.

More attention too, is nowadays paid to the clinical history of a disease as an indication for treatment than in days gone by. If as in Epizootic Influenza, we know that the first symptoms of a violent inflammation are to be followed in a few hours by the greatest debility, we are warned not to reduce the patient's strength by depletive measures, but to guard against the consequent loss of strength by agents which seem to be contra-indicated at this period of the disease—agents which will place the patient in the very best possible condition to withstand the depressing influence of the poison already in the system and about to show itself by the great reduction of vital force through its action upon the nervous system.

A great mistake in the past has been that the resort to the use of stimulants was deferred until nature was so completely exhausted as to be beyond the reach of their influence, instead of anticipating as we now do the ravages which the disease would otherwise make, and by an *early* administration of stimulants *prevent* that condition of the system so dangerous to the ultimate recovery of the patient, thereby carrying through to a happy convalescence very many cases, which under the old method of sedative treatment would succumb to the influence exerted by the disease.

I notice by a reference to English authorities that our trans-Atlantic cousins do not believe in the use of stimulants to the same extent as we Americans do. At the same time I have observed that country practitioners here do not so strongly advocate the use of these medicines as do those who practice in cities.

It is no doubt true that pampered city horses do not bear disease so well as those subjected to rugged country life and fare. Although the percentage of the different diseases to which the equine species are subject varies between the city and country, still I believe stimulants could be used by the country-practitioners with results more satisfactory than those now obtained from the use of sedatives in several of the diseases which they are called upon to treat.

In the time of that most eloquent of veterinary writers, Percivall, a man's sanity would no doubt have been gravely questioned had he recommended the use of stimulants in such a disease as Pneumonia. In his Hippo-pathology in speaking of the treatment of this disease he says, it may be necessary to bleed once, twice or three times within eighteen hours. He considered blood-letting imperative, and that too "without any regard whatever as to the state of the *pulse* or condition of the patient."

Truly Pneumonia must have been considered a very formidable disease at that time if no possible condition of the system could render immunity from bleeding. Considering that Pneumonia tends to recovery, I do not think we are wide of the mark when we say that the treatment then adopted, greatly increased the mortality in this disease, while had its pathology been clearly understood and its clinical history observed, the fallacy of their theory for its successful treatment would have been detected and remedied long before it was.

As it was in this disease, so it was in many others, until step by step the belief that a disease must be treated in conformity with certain prescribed rules, without any regard to the modifications indicated by the condition of the patient, died away; and comprehending more fully the conditions we have to deal with, we treat our diseases to day with less prejudice, and with more regard for the scientific principles established by a better knowledge of the ailments to which the domestic animals are subject, and an increased understanding of the action of many medicines, especially *Stimulants*. Ringer in speaking of stimulants says "they are most serviceable in the prostration from acute illness, when in common with the other functions, *digestion* is much depressed, at a time when it is most important to support the strength until the disease has done its worst. Strength no doubt is best supported by food, yet the weakened stomach can digest but sparingly. At this critical stage Alcohol well spurs the flagging digestion, and enables the patient to take and assimilate more food." To get the best results from the use of Alcohol, the doses should not be large, and more often repeated.

If a large dose is given the heart is strongly stimulated, and when the Alcohol is decomposed or eliminated the heart is left unsupported, when great weakness may set in; whereas smaller and oft' repeated doses keep the heart more uniformly supported. In man, if the use of alcohol is too long continued, it induces catarrh of the stomach, a condition no doubt to be expected in our patients from the abuse of this medicine. One author states that he has often successfully used alcohol to control the after stages of acute simple diarrhoea. It acts by giving tone to the relaxed mucous membrane which is allowing the liquid parts of the blood to pass into the intestines causing those frequent watery dejections. Alcohol taken internally reduces the animal temperature. Dr. Rickards finds that after moderate doses have been given the temperature will fall from four-tenths to six-tenths of a degree F. In poisonous doses the reduction is very much greater, reaching in man as much as three degrees Fahrenheit, while in rabbits a fall of ten degrees has been noted. Alcohol diminishes the oxidation of the tissues of the body, according to the testimony of such eminent authority as Drs. Harley, Bocker, Hammond, Smith, and others. "It strengthens the contractions of the heart, especially when this organ is weakened by debilitating diseases, which are always attended by a quickened and weakened pulse."

It is one of the most powerful cardiac tonics we have in disease, and this tonic property combined with its influence in promoting digestion, explains its great usefulness in many diseases. In those acute diseases which run a definite and limited course,

accompanied by weakness or prostration, alcohol is of conspicuous service in sustaining the vital force beyond the critical stage. Dr. Armstrong, in speaking of the use of stimulants in fevers, says, "If they *increase* the pulsations of the heart—the respirations—or make the skin hot and parched, they should be discontinued." In using stimulants, and especially alcohol, it will often be noticed that a large, soft and weak pulse will grow smaller and less compressible, showing that the heart is strengthened by their use and the tenacity of the arteries increased.

In England Dr. Anstie is a strong advocate for the use of stimulants in fevers. He gives alcohol to reduce the temperature and check waste as well as to strengthen the heart's action, reduce the frequency of its beating, and increase the digestive powers. Alcohol has been recommended by our profession in the treatment of tetanus; and I am constrained to say, from my limited experience in its use, as well as from the more important testimony of others, that it is of signal service in this dreaded malady.

If experience has taught us anything in connection with the treatment of this disease it is that all the sedatives and antispasmodics known to the *Materia Medica* are inadequate to break the tonic spasms to which the voluntary muscles of the body are subject. If, then, we cannot overcome this morbid hyperæsthesia of the nervous system with the drugs, seemingly indicated by the symptoms of the disease, let us support the digestive and circulatory powers of the animal economy, until nature accomplishes what science has as yet failed to find a remedy for. In those cases which seem to do well for a week or ten days and then suddenly die—cases in which, if you will make a post mortem examination, there will be found evidences of debility from exhaustion—stimulants, and especially alcohol, will, in many cases, I believe, tide them safely over the critical period and succeed in establishing convalescence.

The only case of tetanus that ever recovered for me—and it was one of the most unfavorable that I ever had—was treated with two-ounce doses of alcohol every six hours.

The dose was small, and the periods of exhibition probably farther apart than they should have been, yet the animal did well and made a good recovery. Trismus was well marked for six weeks, part of the time the jaws only opening one inch. The appetite was retained during the entire time, and digestion apparently as good as in health, for the animal took on considerable flesh during the time of her illness. The temperature averaged about 101 degrees F., rising to 105 $\frac{3}{4}$ degrees F. at one time, from the fact that she got down and could not regain her feet. It may be that this was one of those cases that recovered in spite of treatment; but when I consider the uniformity of temperature and action of the heart, as well as the very desirable retention of the appetite and digestion, I am forced to believe the alcohol had a marked beneficial effect upon the disease, and that the remedy is well worthy a further trial. The fact has been long recognized that the first step in the treatment of tetanus is to secure entire quietude: and if to this we can add a remedy, so easily administered as alcohol, that will sustain the important functions of the body until the nervous forces regain their wonted equilibrium, we will have succeeded in establishing a method of treatment simple in the extreme, and attended with results more to be desired than the past can claim for any treatment hitherto adopted. One thing is certainly evident to us all, and that is, alcohol does not depress the vital forces as sedatives do, while if it makes a horse as limber as it does some men, we might have a decided antispasmodic effect from its free use.

Perhaps no medicine in our knowledge enjoys so extensive a use by American

Veterinarians as the carbonate of ammonia. As a general diffusible stimulant it seems better adapted to veterinary practice than the other drugs in this class of medicines.

When I used to treat pneumonia with sedatives *every* patient died; since I have learned to use stimulants I have not lost a single case except where there were complications that resulted fatally. So far as my experience goes I find that the cases do better as a rule if placed upon carbonate of ammonia from the commencement of the disease. As instructed at College I have tried belladonna, in conjunction with the carbonate of ammonia, in the first stage with very satisfactory results. When in this disease the pulse becomes soft and weak and the temperature high, carbonate of ammonia strengthens the heart's action and reduces the amount of fever present. It is at this period that alcohol is of signal service in reducing the temperature, giving strength to the weakened heart and supporting the flagging digestion. But in those cases where there is imminent danger from the elevation of temperature, these medicines are not to be compared with the quick and efficient action of Quinine. I have seen the temperature reduced almost three degrees in twelve hour's time from the exhibition of a two dram's dose of Quinine. I have used Carbonate of Ammonia and Belladonna with marked success in a case of Cerebro-spinal Meningitis, and I can see no objection to its more general use in this disease. It will support the general strength of the patient and assist the Belladonna in keeping up the usual vigor of the circulatory system. I gave it in the case above mentioned for several days in gruel, per rectum, and with apparent good results, the only objectionable feature being a slight catarrh of the rectum induced by the irritating effects of the Ammonia, but this subsided of itself in a few days after the administration of the medicine in this way was discontinued. The only nourishment and medicine the animal took for five or six days was given in the form of enemas, and the ultimate recovery of the patient attests the benefit to be derived from this method of supporting the system during the period of inability to perform deglutition.

As an experiment I treated five cases of sub-acute Laryngitis with Belladonna and Carbonate of Ammonia and had just as complete and early recovery as in those cases where the ammonia was not used. The advantage which I at the time thought was obtained from its use, was the retention of the appetite to a marked degree and a more rapid convalescence. In the treatment of Influenza, no medicine works so well as the Carbonate of Ammonia. As a rule I do not think we can commence its use too early in this disease. Knowing as we do the clinical history of the affection, we aim to prevent the early debility which always occurs, by a vigorous administration of general stimulants from the very onset of the complaint.

Even in those cases where you will find with the first symptoms of the disease a strong full pulse and membranes highly injected—those cases I was taught positively contra-indicated the use of stimulants—they prevent to a great extent the debility which would otherwise follow.

In the summer of 1874, I treated thirty-three cases of Epizootic Pleura Pneumonia with Carbonate of Ammonia and Camphor, and of these thirty-three only five died, certainly as low a percentage of mortality as could be expected in this disease.

I do not mean to say that this treatment was more successful than any other would have been, but that the results were so favorable as to justify the belief that any other treatment would have been attended by at least as great a mortality.

In some of those diseases where we use stimulants extensively, English Veterinarians strenuously oppose their employment.

Prof. Williams in his Principles and Practice of Veterinary Medicine, while speaking of the treatment of Pneumonia says "convinced of the inutility and danger of venesection many veterinarians, undoubtedly influenced by the teachings of Dr. Todd, fell into the other extreme, and treated pneumonia by large and repeated doses of stimulants. What possible good effect this kind of treatment has upon an ordinary case of pneumonia is beyond my comprehension; it can only add to the irritation of the inflamed part and increase the amount of exudation if pursued in the earlier stages." He further says: "In the later stages, during the deliquescence and absorption of the exudate, if the pulse be small, or in any degree presenting the double or dicrotonous character, when the system is depressed by the obnoxious effects of large quantities of effete materials in the blood, moderate doses of stimulants are both necessary and beneficial. The practitioner should, however, wait until the consolidative stage has to some extent disappeared and secondary crepitations established." It is beyond my comprehension how stimulants irritate the inflamed part in pneumonia. The one we commonly use—the carbonate of ammonia—does not come in direct contact with the inflamed tissues, but first enters the blood, where it strengthens the action of the heart, reduces the animal temperature, and increasing the alkalinity of this fluid tends to defibrinize it, thus preventing in a measure the fibrinous exudation which we have in this disease. Professor Williams does not believe in using stimulants during the period of danger. In the second stage, when the heart's action is rapid and weak from over-exertion and the lungs filling with exudate, requiring the concentrated action of the heart's forces to drive the blood through them, he believes in giving *aconite*. It is true *aconite* reduces the number of pulsations of the heart, yet it *always* diminishes its strength, and, to my mind, seems contra-indicated, especially in the second or third stages.

That *aconite* is beneficial in the first stage I do not deny; but as we do not usually see our patients until this stage is past, and with it the indications for sedatives, I believe our English practitioners would find more success in the treatment of pneumonia did they not so vigorously object to the use of stimulants.

That *digitalis* is a stimulant is not admitted by all practitioners, yet we are assured, upon good authority, that the heart's contractions are strengthened by its use, and may be finally tetanized by its *excessive* use. "The heart of a frog, immersed in a solution of *digitalis* (1 grain to 8 oz. of water), will beat for two hours and a half, the pulsations becoming longer as they become fewer." When administered to man in disease it increases the contractile power of the heart and restores its regular performance. Messrs. Bouley and Reynal, in giving large doses to horses, found the circulation became more rapid, the heart-beats more abrupt, their energy much increased and accompanied, after a certain time, with a vibratory thrill, with a decided metallic tinkling; and as poisoning went on a distinct bellows' murmur was heard, becoming more audible on exertion; the heart-beats then show a decided intermittence and the pulse is small, thready, and intermittent. Dr. Brunton considers the blowing murmur as probably due to mitral or tricuspid regurgitation due to irregular contraction of the columnae carnae.

Dr. Fothergill finds that *digitalis* administered to an animal, whose heart has just stopped beating from poisoning by *aconite*, causes the contractions to again take place and the heart in time regains its normal heat, the *digitalis* thus acting as an antidote to *aconite* poisoning.

But in poisoning from digitalis the contraction of the heart is so rigid that aconite has not the power to relax the tetanic spasm and again dilate the cavities. Ringer claims that, after a *large* dose of digitalis has been given, the pulse sometimes becomes very frequent and feeble while the heart is beating strongly, the weak pulse being due to dilatation of the arterioles whereby the blood passes readily and quickly into the veins. Traube holds that digitalis, in medicinal doses, stimulates the vagi nerves and thus slows the action of the heart, while poisonous doses paralyze these nerves, and the heart then beats rapidly and irregularly from want of nervous control. If this be true, digitalis is contra-indicated in aortic regurgitation, where a slowing of the action of the heart allows the blood to regurgitate into the ventricles ; while, on the other hand, it will be of signal service in those cases of obstruction from disease of the mitral valves where its stimulating effects upon the vagi nerves, with its consequent slowing of the pulsations, allows more time for the distended auricle to empty itself before the final contraction of this cavity. Ringer notes a case of dropsy where digitalis was administered in which the discharge of urine per day was increased to sixteen times the previous amount and the dropsy was entirely removed. But he holds that where there is no dropsy in a case of heart disease, digitalis will not act as a diuretic ; yet he considers it a diuretic acting directly upon the kidneys. Are we to infer from this, then, that diuretics have no action upon the kidneys in disease of the heart without dropsy ? If digitalis will not stimulate the secretion of urine except in the cases he mentions—those accompanied with dropsy—it must be an indirect diuretic unless the heart disease prevents a direct diuretic action. In that functional derangement palpitation of the heart, or what some have been pleased to call “spasm of the diaphragm,” the pulse is very weak, while the action of the heart is strong and tumultuous—in some instances striking the side of the chest with such force that the concussion can be heard at a distance of several yards. In these cases, generally due to over-exertion, especially on hot, sultry days, digitalis, administered in small and oft-repeated doses, will soon reduce the action of the heart to its normal condition. Gamgee records cases where it required eight days for complete recovery to take place. I have never seen a case that did not recover entirely in twenty-four hours’ time. It may be that the palpitation in the cases mentioned by Prof. Gamgee was due to some organic disease of the heart ; for if it was simply due to an exhaustion of the influence exercised by the vagi nerves upon the heart, it would certainly yield to treatment in much less time than he mentions. I remember a case where the heart was so tumultuous in its action that the whole body was shaken at every pulsation, and yet it recovered in two and a half hours from the administration of ounce doses of ether repeated every half hour. Digitalis is highly recommended in those cases of pneumonia where there is danger of death from heart clot. The digitalis, by strengthening the heart’s action, prevents the commencement of the fatal heart clot.

I used digitalis, carbonate of ammonia, and opium combined in a case of obstinate diarrhoea accompanying pneumonia, but without success. The pneumonia did well but the diarrhoea would not yield to treatment, and the patient died of asthenia. Dr. Brinton highly recommends digitalis in hæmoptysis, and says that hemorrhage will cease so soon as the frequency of the pulse is reduced. I have never seen it tried ; but if digitalis strengthens the action of the heart and relaxes the arterioles, why is it the bleeding is not increased instead of diminished ?

The sensation of hunger is increased by the administration of bitter tonics, but we have no evidence that strychnia increases the power of digestion in a healthy person.

Savory has shown that strychnia is much more poisonous when injected into the rectum than when swallowed. Harley's experiments prove that this powerful remedy acts upon all parts of the spinal cord, dilating the vessels, thereby increasing the supply of blood to the cord, while at the same time it augments its functional activity. Strychnia does not merely heighten the reflex action of the cord but it so affects it that impressions are not confined within their natural limits, but diffuse themselves throughout the whole cord.

It is from this property of increasing the supply of blood to the cord that strychnia is administered in those cases where paraplegia depends on softening and wasting of the cord, further destruction of the degenerated tissues being prevented by dilating the vessels and increasing the supply of blood to the parts.

It exhibits its action sooner upon paralyzed than unparalyzed muscles. In medicinal doses it strengthens the action of the heart. Harley says strychnia lessens the absorption of oxygen and the production of carbonic acid, or in other words, the respiratory function of the blood is lessened. Animals suffering from habitual flatulence are relieved by the use of nux vomica or its alkaloid. According to Dr. Anstie strychnia increases the capillary circulation. It is upon this ground that its use was recommended by our profession in the treatment of Purpura Hæmorrhagica.

But as the extravasations in this disease are due principally to an alteration in the character and composition of the blood, I imagine it would be more in keeping with science should we treat the cause of the trouble than to treat one of the results. Still, if the administration of strychnia will prevent these extravasations from taking place by its action upon the capillaries, it will form a valuable adjunct to the direct treatment of the blood. Strychnia is of marked benefit in many cases of incontinence of urine. I remember treating a mare that had aborted a six months' foal, and was suffering from paralysis of the neck of the bladder, with small doses of strychnia, and effected a cure in a few days' time.

We probably use strychnia more in the treatment of meningitis than in all the other diseases combined. That it is of great value in the later stages of this disease can be attested by almost any veterinarian who has had this formidable disease to deal with. I have seen it used from the very outset of spinal meningitis with good results; yet if our knowledge of the pathology of the disease is correct it would hardly seem indicated in the early stage. If the amount of blood sent to the spinal cord in meningitis is in excess of the normal quantity, the administration of strychnia, which increases capillary circulation, would be expected to aggravate the symptoms, yet such is not the fact. One of two things then seems evident to my mind, and that is that strychnia either does not increase the capillary circulation in the meninges of the cord, or else the stimulating effects it has upon the functional activity of the cord, independent of that produced by an increased supply of blood over-balances the interference of function dependent upon an *excessive* supply of blood to the parts. I have used it early in a case of Cerebro-spinal Meningitis in conjunction with carbonate of ammonia with satisfactory results. I have tested its influence upon the same disease by alternating every two days with extract of belladonna and carbonate of ammonia, and found the patient did as well apparently under the exhibition of the one as of the other. If there was any difference in the symptoms noted, it was that while the animal was under the influence of strychnia, the temperature was from one-half to one degree higher than during the time of giving the belladonna. Now, it seems to me if belladonna and strychnia are diametrically opposed in their action upon the capillaries of the

meninges of the cord there should be a greater difference in the symptoms when used as above stated. True, experimenting upon a single case proves nothing, yet it is testimony tending to disprove the correctness of our theory for the treatment of this disease.

In a case of cerebro-spinal meningitis where there was complete loss of deglutition and inability to rise, I gave the animal two grain doses of strychnia repeated every four hours until the least noise would cause involuntary contractions of the voluntary muscles, at which time the dose was diminished and from that hour I marked a rapid and finally complete recovery. Just as soon as the twitchings of the muscles commenced, the power of swallowing returned, of course very imperfectly at first but with rapid improvement, so that in three days time food was quite readily taken and water was with some difficulty swallowed.

In some cases of chronic paraplegia seen in country practice and called by Prof. Williams "Azoturia" strychnia seems to do but little good and a complete recovery is best attained by turning to pasture for two or three months. In other cases it acts well producing a rapid recovery. In the earlier stages of this disease belladonna is an important remedy. Belladonna is very extensively used both externally and internally by all medical men. As an external application its effects are most readily seen and appreciated in the swollen udder of cows where suppuration is threatened. It not only reduces the swelling and pain consequent upon the inflammation, but at the same time diminishes and finally completely suppresses the secretion of milk. If applied early it will entirely prevent suppuration, and even in those cases where suppuration is inevitable the extent of the suppuration will be greatly limited by its use. Where there are constitutional symptoms accompanying the local trouble belladonna should also be used internally. The secretion of sweat, saliva and mucus is also greatly reduced by the use of belladonna.

Trousseau recommends the use of belladonna in obstinate constipation, it being claimed that it increases the peristaltic action of the intestines. Foster said if it is administered in conjunction with iron, the constipating effects of the latter drug, are prevented. Dr. Frazer was the first to discover that atropia excites the spinal cord and heightens reflex action, although this action is not displayed, from the motor nerves being paralyzed by its use. Dr. Harley considers belladonna a powerful heart tonic because of its power to reduce the frequency and strengthen the beats of the heart when weakened by disease. He also claims that a small dose *contracts* the *arteries*, while a large one dilates them. The contraction being due to stimulation, and the dilatation to exhaustion of the sympathetic nervous system resulting from its previous over-stimulation. Dr. Brown Sequard maintains that belladonna exerts a powerful influence upon the unstriated muscular fibres of the body, instancing the power of the drug to produce dilatation of the pupil of the eye, contraction of the blood-vessels of the mammae, thus arresting the secretion of milk, contraction of the muscular fibres of the bowels and sphincter of the bladder.

I have lately seen atropia and morphia, one sixtieth of a grain of the former to one twenty-fourth of a grain of the latter, administered hypodermically to a man suffering from bronchial asthma, give almost immediate relief. If the disease we call heaves or emphysema is at first dependent upon the same nervous derangement, as held by Prof. Williams, the action of these two drugs should be tried upon our patients. If the small bronchial tubes are in a state of spasmodic contraction, and belladonna had the power of paralyzing the terminations of the vagi nerves it must necessarily give relief. Belladonna has been recommended to abort threatened attacks of bronchitis and other

inflammatory diseases of the air passages. That it has a marked influence upon these diseases when administered early there is no doubt. In the treatment of Laryngitis it might with justice be called a specific. Years ago when this disease was treated by the usual depletive measures the mortality was considerable, while to-day a case seldom dies. Its use greatly relieves the congestion and irritation of the inflamed parts and prevents to an extent the distressing cough accompanying this disease; it reduces the amount of the discharge which usually takes place and tends to prevent the formation of abscess in the intermaxillary space. Its local application when the glands are swollen and painful will give relief. The use of Belladonna in the treatment of Cerebro-spinal Meningitis was first recommended by Prof. Large of Brooklyn. He has the honor of having been the first author to name and give a comprehensive account of the pathology and treatment of this disease, notwithstanding the assertion in Williams' Principles and Practice of Veterinary Medicine published in 1875, "that no veterinary writer has as yet given to it the attention, which, considering its increasing frequency it demands." And although the author states that his first knowledge of its appearance in the United States, was in the winter of 1871, Prof. Large's articles appeared in the *Veterinarian* in 1860, and the disease has been known here for at least *thirty* years. Prof. Large claims that belladonna is THE medicine indicated in this disease. That having an increased supply of blood sent to the meninges of the cord, our aim is to reduce the excess of blood to the parts by administering a medicine which will contract the capillaries. If the deductions of such men as Harley, Brown, Sequard and Foster are reliable, belladonna should be used in this disease without a doubt, and that too with very favorable results, yet as I stated when speaking of strychnia I have seen just as favorable results from the use of that drug, from the very commencement of the disease as from using belladonna. The article in Williams' works considers it best to regulate the bowels without the use of cathartics, while I have found that a good brisk purgative does much good, not as a *stimulant*, but by unloading the system rapidly, of a large amount of the poison contained in the serum of the blood. The same author in speaking of the *pulse* says "as the disease advances and the patient becomes weaker it increases in frequency and is *strong* and *wiry*. When speaking of the treatment of the disease, he says "he has found the use of atropine very efficacious." Can a medicine that increases the heart's force of action, and contracts the arteries, be indicated where you have a strong and wiry pulse? Do we have a *strong* and *wiry* pulse as the animal grows weak from this disease? Lastly belladonna is recommended in all the inflammatory diseases affecting the pelvic organs as well as being a homeopathic remedy in treating bowel troubles. In the Summer of 1873 I treated a case of rupture of the vagina, the accident occurring at time of coition, with belladonna and had recovery in two weeks' time, although another case in a few weeks after died from peritonitis.

A FEW REMARKS ON CHRONIC LAMENESS IN HORSES' FEET

One of the most important subjects connected with the study of veterinary medicine and surgery, is lameness in the feet of horses: important for two reasons, first, because the diseases producing lameness have generally been misunderstood in some respects, concerning their causes and character, and secondly on account of their frequency and the great depreciation in values and loss of usefulness in consequence thereof.

It would be difficult perhaps to calculate the immense damage arising from lameness in horses, in a large city like New York, Philadelphia or Boston every year, but they who are conversant with the subject know that it would reach to a large sum, one which would astonish people who know but little about it, or have given it no thought whatever.

During all the time the veterinary art has received attention from educated men, from its earliest records up to the present time, we learn that the chief maladies affecting the serviceable working condition of horses, have existed in their limbs and feet. Unfortunately however the investigation of early veterinarians were not pursued in the right direction, or productive of good results, either in gaining correct information concerning the physiology and pathological condition of the structures involved, or in the prevention and treatment of the diseases causing lameness.

A slight review of a few of the teachings of early authors will show that a large amount of error has been written and generally accepted, while at the same time it will furnish but a little that is really useful or even practicable from which benefit may be derived. As a general thing we find that most authors who have treated the subject of foot-lameness, have had some hobby⁴ either in regard to the physiology of certain structures involved, with relevant methods of paring the feet and applying shoes; or in favor of curious and uncommon shapes and kinds of shoes and methods of nailing them on; all of which were intended to assist nature by accommodating or aiding some supposed function of the foot, or some of its parts, to perform that function with greater ease and at less expense to the foot, than it could do without such mechanical aids; but all of which have failed to accomplish what was intended by their originators, on account of possessing but few if any other merit than that one of novelty, from misapplication and for other reasons apparent to all familiar with the experiments, their practical application and known results.

We learn for instance that Colman was the cause at one time of having certainly one-half of the horses in London, shod with shoes thick at the toe and thin at the heels, something in the same manner as we see horses shod at the present time with what are known as the "Goodenough" shoes for the purpose of producing frog-pressure, it being taught that this pressure upon the frog would brace the heels open when the foot was trod upon and prevent what was known as contraction of the hoof.

But a little time developed that pressure applied to the frog at the expense of correct position of the foot and limb, was in itself a cause of other diseases than that it was

intended to prevent and cure, and at the same time all the good results which possibly might have been derived from distributing the weight bearing surface over a greater portion of the bottom of the foot, was more than offset by the practice of thinning the sole of the foot, to allow it to spring easily up and down, as he taught was the requirement of the normal or healthy foot. The non-success of the frog-pressure shoe caused it to be discontinued, but it appears that its author discovered another place, viz.: that of protected frog-pressure.

Falsely supposing the reason or cause of its failure to consist of the fact that the sensitive frog became irritated and bruised from too forcible contact of the horny frog with the hard or paved roads, he applied artificial frogs made of rubber, in order that the horny frog might not receive the direct blow in coming to the ground, but that the required pressure might still be exerted on the frog.

Then Bracy Clark labored long and earnestly to show that the foot became diseased only from confinement, by wearing an unyielding iron shoe, nailed to the hoof preventing the lateral expansion consequent as he supposed upon its coming to the ground and bearing the superincumbent weight.

Interference with this important motion of the hoof, prevented exercise considered necessary for the health of the internal foot and pain and discomfort were the results as he says from thus confining it "as within a vise."

Now, allowing he had pointed out the cause of diseased condition of the foot and that they originated from a "ruinous defect" in the application of shoes, the remedy would have suggested itself to any man of ordinary ingenuity as it did to him; so he invented the well known jointed shoe, consisting of a shoe made in two halves of the ordinary shape and having a joint or hinge at the toe. Being nailed to the hoof in the ordinary way the hoof might open and close all it required to.

James Turner a brilliant writer who first gave prominence to navicular thritis as a cause of lameness, also sought by a specific plan of shoeing to modify and prevent chronic lameness, in a manner similar to that adopted by Clark. Viewing the cause of disordered and painful conditions of the feet to consist chiefly in the fettering influence of the shoe as it was commonly applied, he invented the extremely simple means of allowing the inner quarter of the hoof to expand, by nailing the shoe to the outer quarter and toe of the hoof only, leaving the inner quarter entirely free.

He offered many plausible reasons to show why the unilateral or one side nailed shoe should be used universally, but for evident reasons it shared the same fate as have all other specialties of its kind and was discarded after being proved a failure.

It would be very easy to refer to and quote from other authors who have affirmed and in some instances exceeded the ideas of the three spoken of, but it is not necessary for my purpose.

I am aware in choosing the subject now being considered, that I have selected one in which there is almost an endless amount of material for discussion, or for the production of similar papers, so my desire is to introduce only just a sufficient amount of what has already been written to make my meaning plain.

My object in alluding to those writers and their methods of shoeing is not only to remark the fact that the specialties invented by them were of an unscientific and unworthy kind, but also that being founded upon an unsubstantial and worthless basis, there was no possible need of their ever having been adopted.

Almost all of the so-called systems of shoeing for which so much has been claimed by their authors from the time of Lafosse down to the present day, have had for an

object the prevention of contraction of the hoof, and although there is without doubt a distinct connection between a diseased condition of the internal foot and a dwarfed diminished appearance of the external hoof, I have the confidence to believe that no one who listens to the reading of this paper tolerates the belief that there exists an inherent tendency in the hoof itself to contract, or that such contraction of the hoofs, occurs as it was formerly taught, as a primary condition, affecting subsequently the internal sensitive tissues, which it protects and defends from injury. Consequently I believe that horses may be shod with ordinary shoes properly and intelligently applied, for many years, without suffering even the most temporary and slight inconvenience, except there exists as there does undoubtedly in a large majority of instances, a predisposition to inflammation and pain, influenced fully as much by other causes as by the wearing of shoes as ordinarily applied.

Previous to the discovery of the navicular disease, there was even among the veterinary profession, no thorough pathological knowledge of the diseases of the feet; the same being usually named from some prominent symptom defining the character and degree of the lameness itself.

Founder was the term mostly used to designate a condition, the exact idea of which nobody attempted to explain. It signified as it does to-day a "used up" condition, from which little hope was had for recovery.

The term coffin-joint disease was sometimes used and the term laminitis subsequently, as it is to-day.

Until within a short time I have used the term chronic laminitis myself, applying it to a condition which I believed existed of which the symptoms are those indicating a general uneasy feeling in the feet, which causes the animal to rest them alternately, to stand braced out, and to travel as if using the limbs in a manner to relieve pain in the shoulders.

And I have frequently heard other practitioners speak of such cases as cases of chronic laminitis. Chronic laminitis and navicular disease have in fact been the only two terms I have heard applied to those diseases the symptoms of which are best expressed by the term "grogginess" and I do not hesitate to confess that I have often repeated these words to owners of horses, with an air of assurance, wholly assumed. Like the man who had told one lie so often, he really believed it to be a truth; if at first I had felt any doubt about making diagnosis of cases, the exact morbid conditions of which I was not familiar with except from reading; as I grew older in practice I had greater confidence to repeat either of the two names alluded to, because I had used them so many times. They satisfied me as they undoubtedly have satisfied some of you and particularly have they been convenient in instances where my treatment failed to relieve lameness, affording a shield behind which I have often sought shelter.

Now I wish to be understood plainly as not disputing the frequent occurrence of navicular disease and chronic laminitis. That is not my object in the least, but I do protest against disposing of every case of lameness, even if it be of long standing in this way, and I wish to point out that quite as often, if not yet more so, other structures than those implied by these names, have and do suffer and become deformed and otherwise altered in structure, in a manner not generally known among veterinary practitioners, so far as my acquaintance extends, at least never referred to by them if observed and understood.

In the pathology of the horse's foot, I believe an omission has been made, not of trifling or hair-splitting distinction, but of grave importance, and it strikes me as being

singular, in view of the fact that it is quite common and particularly because the parts affected, are so important in the construction of the foot, that the disease of which I shall speak, has never been referred to, at length, in any veterinary work, at least so far as my knowledge extends.

The nearest approach to any mention I find made of it, is in Gamgee's work on "Horse Shoeing and Lameness" in which he gives an account of some peculiarly diseased and deformed coffin bones, illustrated by wood-cuts of unusual and interesting specimens.

It was not until after I had arrived at some of the conclusions, which I shall attempt to explain, that I happened to find in Gamgee's work the account of which I speak, and although written prior to my conception of such knowledge, I have read it with a good deal of pleasure, for it confirms much that I had thought out somewhat crudely and disconnectedly myself.

In order to be definitely understood I shall now state that in a large majority of cases of chronic lameness, I believe the cause to be inflammation of the periosteum of the coffin bone and of that bone itself; that I have reasons for believing this inflammation in many instances, to be of a rheumatic nature, and that in most all cases of chronic lameness, even where navicular disease is found it is the part primarily diseased.

I shall argue these propositions briefly for your consideration as follows:

The variety in size and shape of the hoofs of horses, is as great, perhaps greater than in the feet of man, so we should not expect to find the coffin bones alike, either in bulk or form in the feet of different horses, but for any one who possesses the ability to carefully and discriminately examine a number of these bones, and who has never done so—there remains a fine opportunity for observation and study.

I do not hesitate to express an opinion that more than one half of the number examined, be it large or small, will be found diseased, and have never yet seen what I considered a perfect one myself. Furthermore I have never read a correct description of a healthy coffin-bone, nor yet have I seen a drawing of one; but I have seen a few so nearly perfect, that I can imagine about what figure and external appearances the normal bone should present and know that the descriptions given by some anatomists convey wrong ideas of the appearances it should present.

A description of the coffin-bone by Percival in his anatomy is interesting in this connection, as showing that its author failed to distinguish the difference between a sound bone and one showing all the evidences of disease during life.

"The coffin-bone" he says "has everywhere a furrowed and porous surface, the furrows which run from above downwards and forwards, being most distinct inferiorly and latterly, and the holes or pores consisting of a large and a small set, of which the large set only are numerable or worthy of particular mention, the small ones being infinite and numbers of them even imperceptible."

"The inferior edge is notched or serrated particularly towards the sides where in places the notches widen into gaps in order to give passage to the bloodvessels to the sole." Finally he speaks of the bone as being "of a soft, spongy, fragile texture, its intrinsic stability being still further reduced by the canals pervading its interior for the transmission of blood-vessels and nerves."

Now to my mind this description is as faulty as it can be and unworthy a place in a book containing so much other useful and valuable information.

I should find it very difficult to write a true description of the coffin-bone, but I fancy I can give a few ideas concerning it, which will convey a better idea of it than

Percival has. It is somewhat furrowed and pierced with foraminæ to be sure, but certainly not to the extent his words would lead one to expect. The roughened and furrowed aspect he speaks of will be found only on diseased bones, neither are its lower edges "notched and widened into gaps" to such an extent except as the result of disease.

The most casual examination also will demonstrate that it is not of a spongy, fragile texture.

If any of you believe it is a delicate and easily broken down structure, take a saw and cut one in two from the top downwards and you will be convinced to the contrary.

I find the external surfaces to be smooth compared with the description above given, slightly furrowed and numerously pierced with foraminæ; but each furrow and its edges is smooth and well defined and each foraminæ has a smooth rounded edge at its entrance into the bone.

It has like the shaft bones a hard or compact tissue externally, its interior being somewhat hollow for the reception of the nutrient arteries. There is nothing about it to indicate that it is a spongy fragile structure, except the roughened surfaces having in some instances the appearance of being worn eaten, resulting from ulceration and absorption of its exterior surface-tissue, but it will be found from the solid character of the bony material of which it is composed, together with its shape and other characteristics, to be a bone of immense strength and solidity as the work it has to do, requires it to be.

Bracy Clark gives quite a lengthy description of the coffin-bone and also two finely executed steel engravings, one showing what he designates as a "shed bone," meaning, I suppose, one that had become shed or detached from its attachments during life. Evidently he did not know which was the healthy bone of the two or he made a mistake of some other kind.

What he calls the "shed bone" so far as I am informed, is the most normal appearing one, having comparatively a hard substantial surface, well protected by its natural compact tissue just the same as other bones of the limb above it. The notion that the coffin-bone is thoroughly covered with ridges and channels and presents a honey comb, worm eaten appearance externally and that it is porous and a frail structure from its surfaces to its centre, comes from reading such descriptions as these and from viewing morbid specimens mistaking them for normal ones.

I shall ask everyone interested in the subject to examine any collection of coffin-bones he may have access to, and see if he can find any two alike, even though they may belong to opposite feet of the same animal, as regards size, shape, number of asperities and depressions, channels, notches and other peculiarities belonging to, or not found in, a healthy condition of the bone. I think after he has examined any number, great or small, that he will agree with me, that most of those examined will be found more or less affected by disease and if he is not satisfied that such is a fact, by calling on me, I think I can show him specimens that will convince him.

I shall not attempt any detailed description of morbid appearances, for I know that the changes in shape, size and external appearances, resulting from interstitial absorption and the ulcerative stage of inflammation exteriorly, would defy description.

It will be more profitable to speak of the causes productive of these changes and these I shall now consider.

It will be necessary to refer again to Percival for an account of the anatomy and physiology of the tissues involved.

In a description of the sensitive laminæ he speaks of an "elastic structure" occupying the space between the laminæ and the bone, as follows:

"This" he says "is a substratum of a fibrous periosteum like texture attaching the laminæ to the coffin-bone, in which it is that the property of elasticity resides to that remarkable degree usually ascribed to the laminæ themselves; indeed so elastic is it found to be that it can be made to stretch like india rubber. Its fibres take a downward and backward direction. At the same time it affords a commodious bed for the ramifications of blood-vessels issuing from the substance of the bone, in which they are (particularly in the stretched condition of this substance) protected from injury, compression and consequent interruption to their circulation.

"The laminæ" he says "are not so highly organized as the sensitive sole, or frog for the obvious reason that all the blood they require is an amount necessary for their own nutrition and for the secretion of the horny laminæ."

I shall not occupy any time to criticise any portion of this quotation. Percival like all contemporary writers held exaggerated notions concerning the elasticity of certain structures of the horse's foot. His description of this what he calls an "elastic structure" includes the periosteum of the coffin-bone abundantly supplied both beneath the sensitive laminæ and sensitive sole.

It is the nutritive tissue, containing the secreting vessels which supply the compact tissue of the bone with food, and affording a protection to the large vessels which pass into the interior of the bone for a similar purpose.

It is a complex structure composed of an outer or fibrous portion and a germinal or nucleated membrane continued into the Haversian canals of the hard or compact tissue, supplying it and the lacunæ with bone forming material. The outer portion forms the receptacle of the blood-vessels entering into the interior of the bone and the inner lining has a formative power of itself to reproduce bone from all subperiosteal exudates, as seen in the formation of splint ringbone and spavin.

So far from its being considered and described as a tributary of the laminæ, I should consider it the more important of the two, particularly in alluding to diseases of the feet, while the amount of work required of this tissue in maintaining a healthy condition of the parts underlying it, would appear to be very great, indicated by its abundant supply, as regards bulk and thickness.

The effects of inflammation of this periosteal covering would be apparent, in alteration of structure and form of the bone itself, and this is just what is found in almost every foot examined.

The coffin-bone receives the larger part of its nutrition from the blood-vessels, supplied to its interior, passing beneath or through its periosteum and through the foramean so plentifully seen on its outer surface. The branches of these nutrient arteries anastomose with those supplied by the periosteum entering the haversian canals and lacunæ.

Inflammation of the periosteum affects the health of the bone by constricting the bloodvessels encompassed by it, these limiting the amount of blood passing through them. Inflammation of the cancellated structure of the bone supervening or occurring at the same time, causes a blocking up of the haversian canals and canaliculi constituting what is known as the consolidative stage of inflammation of bone tissue, followed respectively by the rarefactive and ulcerative stages.

It is a well known pathological fact that the blood-vessels of a part become atrophied or decrease in adaptation to a part, until they contain no more blood, and furnish no more nutrition than is necessary to meet the diminished requirements of a

structure or locality unused to any extent from disease, and there are instances in which fatty degeneration of bloodvessels has followed a similar degeneration of neighboring parts.

A sensation of pain in any part may temporarily increase nutrition, but it usually suspends it, in a degree. There is but little chance owing to the unyielding character of the hoof for hypertrophy of the structures contained within it, except by change of position. Neither do we find large exostoses on the surface of the coffin-bone.

The ordinary changes consist of diminution in bulk of the internal foot and a corresponding lessening in size of the hoof. Accompanying such phenomena will always be found the morbid conditions of the coffin-bone referred to, including alterations in its size, shape and position within the hoof and generally a condition resembling the rarefactive or ulcerative stage of inflammation, more or less, over all its surface.

It may be interesting in this connection to refer to some of the terminations of the disease known as acute laminitis or founder.

In most cases so far as we can judge it terminates by resolution without causing any alteration of structure and the animal appears to travel as well as ever. In others we get an exudate from the laminæ, between their surfaces and the horny laminæ causing a separation between them around the toe. But we find that the inflammation is not confined to the laminæ, as shown by the great and permanent injury done to the coffin bone.

Its ravages here include all the possible forms of absorption and ulceration of its exterior surfaces above and below. In many cases there follows a complete breaking down or separation of the periosteum from the bone, the space between becoming filled with fluids and solid exudates, having no particular character or organization, together with sloughing of bone and other adjacent tissues. For this reason and for some others hereafter mentioned, I believe the term acute laminitis does not convey a correct idea of the disease, being insufficient in itself to thoroughly represent the amount or extent of the lesions made by the disease. The term Peditis or even Founder would much better express the condition of the parts, known to exist by the most unmistakable and indisputable evidences.

I expressed the opinion that inflammation of this periosteal substance resulted in many cases, both in its acute and sub-acute or chronic form, intrinsically from a rheumatic diathesis and must be expected to state my reasons therefor. I know very well long before this portion of my paper has been read, that many a quiet laugh will have been had at my expense and therefore I regret having come before you not fully prepared to maintain the positions I have taken. My convictions of being right, however, are firmly rooted and I shall not easily be moved from them except it can be shown conclusively that I am wrong.

My reasons for the rheumatic theory are few and may appear quite crude and simple.

In the first place the periosteum is a fibrous structure, the same most frequently affected by rheumatism in man.

I should not wish to be understood as inclining to the opinion that the periosteum is alone of all the tissues of the foot, the one affected, but I do not hesitate to express an opinion that it is the primary seat of most of the diseased conditions; other tissues and structures adjacent to it, being affected consequently.

Secondly in a condition of chronic inflammation of the feet, the symptoms vary in acuteness and hold on as tenaciously as in chronic rheumatism in man. Every one familiar with the symptoms of early sub-acute inflammation of the feet, knows that an animal so affected will appear much freer from pain some days than others and that

moderate exercise while it lasts, relieves the pain in a measure, and that such symptoms are characteristic of chronic rheumatism.

Thirdly from a similarity of symptoms between acute founder in the horse and an attack of acute rheumatism in man.

In both instances there is the same terrible suffering from pain, particularly when forced to move, or change position. I think the term acute rheumatism might well apply to that miserable plight, in which we often find horses we call "foundered" and for which condition the same causes might be attributed as might and would under certain conditions produce an attack of inflammatory or acute rheumatism in man.

The tendency or desire to throw the weight on the posterior parts of the foot to my mind is not an indication that "acute laminitis" is the cause of the pain, for the laminæ are found posterior to the body of the coffin-bone and on the inner surfaces of the bars of the foot. On the other hand, this peculiarity of position shows an effort to relieve the coffin-bone as much as possible from bearing weight, the flexor tendons and navicular bone doing a good portion of this work for the time being.

I find that an animal suffering from acute rheumatism of the feet, stands, when permitted to do so, comparatively free from violent pain, but if he is made to move, his suffering is such that he groans like a human being and it has suggested itself to me many times that there was pain in the tendinous insertions of the muscles and in the sheaths of the tendons as well, and that the malady was not entirely confined to the feet. The comparative suddenness of attack, either in the hind or fore feet in the horse and the apparent lack of exciting cause in some instances, corresponds with its development in man.

I believe it to be metastatic from the pleura, the peritoneum and other serious structures and I have seen it complicated in two or three instances with what appeared to be pericarditis, one of which cases was shown to Dr. Stickney, who diagnosed the case as it was presented at the time he saw it, as inflammation of the pericardium.

If the sensitive laminæ, a mucous tissue, was in that active stage of inflammation and the tendency to metastasis allowed to be as great as we believe it to be, I should not think it safe practice to excite the mucous membrane of the intestines with cathartics, as we do, as there would be serious danger of attracting the inflammation to that locality.

In what may be called passive inflammation of the foot, we see frequently in colts that have never been shod or worked the evidences of such disorder, even in yearlings and two year olds, not only observing the stumbling and soreness consequent upon pain and imperfect development, but the deformed and diminished outward aspect of the hoofs and inaction and non-development of the limbs. In such cases the ordinary exciting causes which are said to produce such forms of disease are lacking, so far as injury from shoeing and driving are concerned, so that we must look for something beyond where we have looked, to account for such manifestations of disease.

These are my reasons so far as I am able to give them for the rheumatic theory and they are not so full and convincing as I wish they were, or as I hope to furnish at some future time.

They satisfy me however as far as they go and I hope they will lead some one better qualified than myself to pursue the inquiry still further.

In this connection I believe examinations of the urine in cases of founder might develop something for or against my theory, and I believe the eburnation or porcellaneous change of the articular surface of the coffin joint may not be absent entirely in many cases of chronic lameness.

Respecting the development of navicular disease from causes connected with previously existing disease in other structures of the foot, I believe it may and very likely does come from overwork in the effort to bring the posterior part of the foot to the ground first, causing greater stress to be applied to the flexors and consequently to the navicular bone and its synovial membrane which becoming inflamed produces the effects so commonly and well known.

By way of illustration I will relate a supposable case of the development of chronic foot lameness, arising from one out of a great many constantly occurring causes, endeavoring to show how it was created and matured.

An animal is injured by unequal pressure of the shoe, or by the nails having been driven too closely to the sensitive foot—and is slightly lame.

Of course the foot is examined and if possible the cause of the trouble determined. Well what is usually done? Instead of leaving the shoe off and relieving the painful condition entirely as would be not only proper, but which I should consider imperative; the shoe is immediately replaced and “put on easy” as they say, perhaps with some tar or other dressing under a leather sole and the horse is put to work again. What are the consequences? The horse uses the foot as little as possible when at work, and rests it all he can when standing; it is to a great extent thrown out of use. The circulation is modified; the heat of the foot affects the elasticity of the hoof itself and this rigid condition of the hoof prevents still further its free use. The chances are, even from so slight a cause, particularly in a foot wherein disease already exists in a latent form, that we shall have a diseased and painful condition of the whole organ very difficult to relieve, if not extending beyond that condition amenable to treatment.

This simple explanation will, in a measure, answer for the whole, so far as causes are concerned, and with a proper understanding of the philosophy of nutrition and wear and tear will enable anyone to see how from trifling injuries serious consequences result, and the phenomena of contracted hoofs may be explained without thought of or reference to inquiries if the foot expands laterally, the sole springs up and down, the laminae stretch, frog pressure theories, concussion upon hard roads, or anything of the kind.

I believe I have read about everything printed in the English language relating to lameness in the feet of horses, and I must honestly confess that for a long time I had no thoroughly clear, well defined idea of the pathology of those diseases which produce it, or of their causes, prevention and cure. I doubt if there is any subject belonging to medical or any other science, about which so many worthless and contrary opinions have been expressed. No man I think can study it as I have, without becoming thoroughly confused and at times discouraged, and when he comes to apply the treatment recommended to accomplish cures in the manner, and for the purposes prescribed he will be even more confounded and disgusted, as I have been quite often.

I have now learned to divest the subject of much of the complication which has rendered it inexplicable and prefer to understand some few things that are simple to having an indistinct and confused idea of unscientific and nonsensical theories. That kind of knowledge which is surrounded by mystery has a peculiar charm for some people, and they are heartily welcome to it so far as I am concerned.

I intended to allude to some of the results of treatment of cases of chronic lameness, but I find that my paper has already exceeded the limit marked out for it, and shall defer that until some other time. A large field I am confident lies open for investigation of the phenomena of wasted and imperfectly developed bones and muscles of limbs accompanying diseased conditions of the feet.

The extent to which any of the structures above the hoofs may become diseased by inaction involving lack of development, or by overwork of muscles, tendons and ligaments that have become unable to sustain severe exercise through loss of vigor, I am not prepared to state; but I hold an opinion that any of the defects manifested in the forward or hind limbs, the exact cause of which is unsettled, may be induced by a painful condition of the feet. The inquiry is one of so much importance that I believe it worthy of unprejudiced investigation, and I allude to it hoping that the subject may be taken up by some one who is well qualified and who has the time and opportunity for pursuing it. The diseases affecting the lungs, liver, kidneys and other internal organs of the horse are mostly similar to those affecting the same organs in man, and we have learned much and profited to a great degree from the investigations of pathologists who have written upon and taught so much that is valuable upon those subjects.

The pathology of the diseases causing lameness in the horse, including the various phenomena attendant thereof, and the circumstances surrounding the animal's usefulness and existence, differ in many respects from similar conditions affecting man.

The structures involved are different in kind, and have different requirements to fulfil, are differently located and subjected to vicissitudes and casualties, the diseases themselves are, *sui generis*. Consequently but little knowledge can be gleaned from works on human surgery, relating to or helping our diagnosis, or treatment of such cases, and the veterinarian is to an extent thrown upon his own resources for obtaining information respecting these matters. For this and for many other urgent reasons, investigation and study of cause and effect, in all the diseases affecting the sound condition of the feet and limbs, should be intelligently and unceasingly continued.

One of the objects aimed at in writing this paper is to provoke discussion, and I hope a full expression and interchange of ideas will occur in consequence of its departure from the ordinary routine of teachings, on matters to which allusion has been made.

ERYSIPELATOUS CELLULITIS.

In May 1859, my attention was called by Mr. Drury to a chestnut gelding about twelve years old, a trotter recently purchased in Maine; on the tail was found an open sore discharging pus which was quite offensive to the smell.

The foreman stated that the animal had been bitten by another horse, the part was dressed and was healing rapidly. In three days, about three inches above was found a swelling which in a short time discharged pus similar to the other, after which another, until seventeen were present. On the tenth of June there was pointing on the right side of the anus; evidently an abscess had formed within and as the animal was greatly debilitated, the owner was advised to send him into the country. On the twelfth he was walked to my place, and was so weak when he arrived that he staggered; soon after the indications were that the abscess should be opened, which was done; a considerable quantity of pus escaped, a whalebone probe was passed about ten inches when there appeared to be an obstruction.

After describing the case to a distinguished surgeon of this city, he gave as his opinion that it was erysipelatous inflammation of the cellular tissue, and advised as treatment, a liberal supply of food, whiskey twice a day and to inject the fistula twice a day with Tr. Iodine, this advice was followed, the animal gained rapidly in strength and appetite, eating a peck of oats daily.

About the 20th of May a swelling appeared above, near the centre of the right side of the pelvis, in the region of the sacro sciatic ligament, the horse soon became depressed, lost his appetite, and the pus ceased to flow from the opening by the side of the anus.

The enlargement before mentioned rapidly increased; as it was evident that a large quantity of pus was present, I opened it where the pointing was most prominent.

From the situation it was impossible for the cavity to empty itself, consequently a guttapercha tube was inserted into the opening while the pus was discharging, the tube acting as a syphon, the cavity was then injected with iodine; this treatment was continued about three weeks, the amount of pus evacuated gradually decreasing from one and one-half pounds to two or three ounces. The appetite increased, in fact there was a general improvement, except, occasionally a few drops of pus escaped from the opening by the side of the anus; there was no evidence that the horse was not entirely well.

In the latter part of September, he was daily led on the street, would trot fast and without any restricted action. I should have added above that he was turned out to grass for a few hours daily, getting a good feed of grass.

On the 9th of October, a bright sunny morning, he was as usual turned out; soon after the wind changed and came from the east. He was probably out about an hour; the next morning he was found to be in severe pain, straddled behind in walking. Diagnosis—Nephritis—Opium was given and repeated from time to time as necessary, which

mitigated the pain, hot cloths were applied to the loins. On the morning of the eleventh there was no improvement in his condition, suffering intensely except when under the influence of opiates. I requested of the owner, permission to kill him as was satisfied that recovery was impossible; he declined from the fact that he owned but one half; the other owner not being accessible at that time. On the twelfth he died.

Autopsy same day, an examination of the thoracic viscera revealed no evidence of disease. Of the abdominal viscera, the stomach, liver and intestines were in good condition; the kidneys as they remained in situ were enormously enlarged. The right kidney was first examined—weight, five and three-fourths pounds, on section it was found to be indurated so that considerable force was used to divide it, of a yellowish white color, very firm throughout and not a particle of healthy kidney tissue to be found; it closely resembled a schirrous mass.

The left kidney weighed six and one-half pounds, and on section presented the appearance of an intensely congested organ, some portions were nearly black, while others were red.

On the right side commencing near the diaphragm was found what proved to be a cyst, running back to the anus; its diameter at either end was small, say seven-eighths of an inch, gradually increasing to the centre to three inches, it appeared to be composed of fibrous tissue, on cutting into the cavity, it was found to be nearly empty, its walls were quite thick and had evidently contracted, as the surface was quite uneven.

CONTAGIOUS DISEASES IN CATTLE.

THE MEASURES NECESSARY FOR PREVENTING THEIR INTRODUCTION INTO THE UNITED STATES AND CANADA.

GENTLEMEN :

I hope I may be excused for venturing to introduce this subject at this meeting—instead of a more scientific disquisition on some abstruse subject of Veterinary investigation ; my object in doing so is to enable us to embrace this great opportunity of drawing the attention of the people, the press, and the legislature of these two great agricultural and stock raising countries, the United States and Canada, to this very important subject which has been too long neglected, but which for the safety of these countries shall be so no longer—that of making some provision for the prevention of the introduction of those contagious diseases of cattle which have from time to time visited most of the European countries, carrying death and destruction from end to end of the land, followed by famine, disease, commercial depression, and all the miseries attendant on such a deplorable state of affairs.

At no time in our history did this subject claim attention so urgently as to-day—for at no time since its discovery, did America command so much attention as a great source of meat supply both in the living and preserved form. Within the last few years the shipment of cattle and meats to Europe, both from the United States and Canada has assumed the proportions of a most important branch of commerce, which if judiciously managed, and the present healthy condition of our stocks maintained must soon become a rich source of wealth to both countries, and a great boon to European working men, to whom from the present high prices of inferior and often diseased meats, a roast of beef or a leg of mutton are luxuries rarely indulged in.

When we consider the enormous wealth represented by live stock in the United States and Canada, (in the former 100,322,600 animals which at a moderate valuation amount to the vast sum of \$1,647,719,138, in the latter 7,982,355 equal to \$133,866,567) we will be able in some measure to comprehend the great responsibility resting on the governments of these countries. In dealing with perishable property no people are more shrewd than we on this side of the Atlantic. As is evidenced by the prosperity of our insurance companies, we will readily pay large insurance premiums for the protection of our property, go to great expense of fire engines, fire companies, alarms, &c. We will spend freely millions of dollars on the paraphernalia of war,

offensive and defensive—We will guard our coasts, and man our fortifications for the protection of our property from imaginary foes who seldom appear, yet strange to say we leave our ports open—nay, give every facility for the entry of an enemy which next to war would paralyze the whole agricultural and commercial industries of the Country. Gentlemen, this is no imaginary picture ; how often has such an invasion passed like a blight over the whole length and breadth of the British Isles, bringing ruin to hundreds of England's best farmers, seriously curtailing her food resources and reducing her working classes to a state of semi-starvation. I am well aware that many will say of us, as was said of Professor John Gamgee, that we are alarmists, that the fears expressed are groundless, but I have little doubt if no protective measures are adopted, like him, we will see the time when our rulers will wish they had listened to us, who at this centennial gathering humbly endeavored to point out their duty to the country, not to trifle with these diseases, but to take each step as will insure their own introduction into the country, an undertaking of little moment compared with that of eradicating them once they are produced.

Professor Gamgee in speaking of the diseases says: "The Epizootic disorders of cattle and sheep plagues, are traced invariably to the East. They spread entirely in the lines of communication established by war or trade between different countries, propagated by contagion, and contagion alone. Local causes influence their spread ; but a careful study of their many outbreaks in different countries, demonstrates that the local causes consist chiefly in circumstances, which render the spreading by contagion most certain. These diseases commit great ravages wherever they spread, and especially in countries like our own where their nature is ignored, and no means adopted for their prevention. They are kept in check and totally prevented in some countries, either from the circumstances that breeding is exclusively carried on in them, or in virtue of wise laws which serve to protect the home produce from foreign importations."

That you may form some idea of the losses entailed by them by these diseases, I will read the following quotation from Mr. Fleming's valuable work on Veterinary Sanitary Science, who says: "up to 1869 for the thirty years that had elapsed since the introduction of the two contagious maladies, Foot-and-Mouth disease and bovine Pleuro-pneumonia it was estimated that the loss from these alone amounted to 5,549,780, head of cattle roughly valued at £83,616,854, (or about \$418,084,270). This is of course irrespective of Cattle Plague. There cannot be a doubt that the same rate of loss has continued, if it has not largely increased since that same period. In 1872 for instance from one malady only, Foot-and-Mouth disease, it was calculated that the money loss in Britain must have amounted to £11,000,000, (or \$65,000,000,) but some authorities are of the opinion that this is even under-estimated. In Ireland for the same year 220,570 cattle were reported by the police as affected by the disease, but this is undoubtedly only a tithe of the actual number, as a declaration of its existence is the exception, not the rule. Nevertheless, if we estimate the loss on each animal reported at £2, (\$10) though it may be nearer £4, (\$20) we have £441,140, (or \$2,205,700) to be added to the above sum as the pecuniary loss incurred in the three Kingdoms from the existence of one preventable malady only. The damage inflicted by contagious Pleuro-pneumonia is probably not so much less as it is always prevalent ; whereas the other is more diffused at some seasons than others."

These facts speak for themselves—and are sufficient to show the immensity of the losses entailed by these diseases in every country so unfortunate as to allow them to be

introduced ; I say allow them to be introduced, for I am convinced that we have it in our power to prevent their introduction not by stopping importation, nor by any oppressive measures calculated to interfere with our commercial intercourse with infected countries, but, by a judicious yet thorough system of quarantine and disinfection at our ports of entry—and with the aid of the government and the co-operation of the people I have no doubt but a judicious system which will serve to protect the property of the people without interfering with our foreign relations, or the liberty of the subject, can be organized and maintained at very little cost to the state or inconvenience to the public. Before proceeding to give you my ideas as to what should be done as preventative measures we will briefly look at the question of our liability to infection. On this subject I know there is some little diversity of opinion, some say that the sea voyage is sufficient to destroy the contagion, that so much care is exercised by importers in buying that there is so little danger of their risking suspected, much less diseased animals ; that our climate purity and rarity of our atmosphere all tend to protect our stocks from contamination by these Zymotic diseases.

If we consider the periods of incubation (the time elapsing between the introduction of the virus and the development of the disease,) we will see that the sea voyage nor any precautions, which a buyer in a strange country can take, will be sufficient to insure against the importations of these diseases.

Pleuro-pneumonia has an incubation period of from three to six weeks, but in many cases this has been found to be less than the actual time—and as remarked by Mr. Fleming. “In this Country, (England) the Contagious Diseases (Animals) act, only admits a period of thirty days, and as after this time isolated animals are allowed to be removed and mixed with others, we need not be surprised to find numerous outbreaks among them, and among the cattle with which they have subsequently been mixed. The period of isolation is too short to be effective.”

Foot-and-Mouth disease is said to have an incubation stage of from one to six days, usually three. Cattle plague about the same period. It would thus appear that the former, Pleuro-pneumonia, is that most likely to be imported, and if these diseases were propagated by voluntary inoculation alone, such would unquestionably be the case, but when we remember the extraordinary contagious nature of them all, that one diseased animal may spread contagion in all directions, through the medium of whatever it comes in contact with, thus railroad cars, steamboats, wharfs, landing stages—not only so, but bugs, hay, the clothing of attendants are media by which healthy animals may be infected. It is thus quite possible for animals to be purchased in a healthy district, in perfect health, and so certified, but we well know the carelessness or indifference in carrying companies, in thoroughly disinfecting their cattle trucks, and how difficult it is to do so thoroughly in many cases, especially wharfs and steamboat sheds—and yet before the animal leaves the country it may have received the virus into its system, and perhaps the disease in a mild form breaks out when a few days at sea, and thus the whole shipment becomes affected. Again we know from experience, that importers are sometimes so unfortunate as to have disease appear after purchase and before being shipped, and if in case of Foot-and-Mouth they are left till they recover, they are sure to be hurried off, and ten to one they will contaminate everything in their line of trail, the bags carrying their feed, the hay, in fact everything connected with them are dangerous to other animals. Such cases I have known to occur, but thanks to the good sense of the owners in adopting the only safe method, complete isolation and the cessation of cattle shipments in a great measure

during the cold frozen months, it was checked, otherways we might have had in Canada a wide spread visitation of the unwelcome Foot-and-Mouth disease.

In view of our rapidly increasing importation which even now are considerable at one Canadian Port alone, Quebec (where our government has wisely established a quarantine where we place all cattle, sheep and swine for eight days, and subject them to inspection and disinfection) 104 cattle, 336 sheep, 23 swine have this season already been imported from European ports—mostly from England. Hitherto these cattle were allowed in Canada, and still in this Country, to be transferred direct from the ocean steamer or ship to the inland steamer or railroad truck without any inspection, and spread over the whole country—now I may ask whether this, as a matter of business, would be looked upon as a par with the shrewd business precautions of our merchants. Does it not seem even to the importers themselves as a very “penny-wise and pound foolish” way of doing business, and does a government which allows such a state of matters to continue not assume a very serious responsibility in thus exposing the people who elect them to the positions of trust and honour to which they are appointed for purpose of framing and carrying out wise laws for the protection and well-being of the lives and property of the people. Gentlemen, we cannot urge this subject too forcibly; we should have but one voice on this question—or our profession will lack in its duty and indirectly must share the responsibility; should our noble herds be invaded and destroyed by disease, which is so easily prevented, but so difficult to deal with once it is amongst us. I have been told that we are quite safe, as these diseases are disappearing in England, that the precautions taken there are sufficient to ensure us against any diseased animals leaving the country. To show you how untrue this is I will take the liberty of reading an article from the *North British Agricultural* on the subject, November 3d, 1875.

“Foot-and-mouth disease has prevailed very generally and seriously throughout the Midland countries of England. Observant and experienced stockowners declare that during the past summer it has been unusually virulent; that sheep, hitherto infrequently slight sufferers have been attacked as frequently and severely as cattle; that losses quite equal to those caused by cattle plague have been entailed; that the measures enjoined for its suppression are lamentably weak and ineffectual; that fresh outbursts of the disease are constantly traceable to the droves of Irish cattle which travel the Western and Midland countries. Careless negligence and culpable reticence are complained of in reporting outbreaks of disease. From infected herds and flocks animals still apparently sound are picked out, and with selfish inconsiderateness, are sent to the public markets and sales, where they disseminate contagion. The inspection of these public fairs or sales, where the cattle or sheep from many sources are congregated, is seldom effected with requisite care or at the proper time. Instead of being present whilst the stock are entering the markets or fairs, and when the infected or suspicious subjects, if discovered, might be stopped, and their power of doing harm minimised, inspectors under existing arrangements usually appear on the scene an hour or two after the stock are “placed,” and after sick animals have enjoyed ample opportunity of infecting their sound fellows. This is provokingly lax practice. The magistrates presumed to understand, interpret, and carry out most of the provisions of the Contagious Diseases (Animals) Act, have some of them strange and inexplicable views relating to foot-and-mouth disease, and regard with unpardonable leniency those who carelessly and wantonly traffic in disease. In some quarters magistrates can scarcely be brought to punish persons who disregard and disobey the Council orders,

and thus expose to risk and loss and deterioration the valuable live stock property of their neighbors.

"Under such irregular and purposeless system of attempted suppression there is no wonder that the disease still continues so generally to prosper. Throughout Great Britain half a million of cattle beasts a week ago were still reported affected. Presuming that each beast undergoes a deterioration of 40s a head, here is a loss of a million sterling. But during the last few months certainly five times the number of patients have been attacked, representing the very serious loss to agriculturalists and to the community at large of five millions sterling. The losses amongst the sheep and swine, seldom reported by the Privy Council authorities, unfortunately represent a further loss of from one to two millions sterling.

"Smarting under these serious losses, which on many stock farms have been equivalent to a deficit of 20s per acre, and with a growing dissatisfaction with the present Privy Council regulations, the members of the Warwickshire Chamber of Agriculture, at a recent meeting, discussed and passed the following sweeping and stringent resolutions, which have further the merit of simplicity and uniformity, and, if carried into effect, would in a few months effectually clear the country of foot-and-mouth complaint. The fourth resolution, preventing the removal of cattle, sheep, and swine, excepting with a special license from a properly constituted authority, may be regarded as unnecessarily severe, but its severity would chiefly be felt by drovers and dealers who, wittingly or unwittingly, are the chief disseminators of contagion. In every village throughout the country one or more men of sense and probity, who would have a ready opportunity of learning the sanitary state of their neighbours' herds, would be authorized to grant the requisite "moving" licences, and, as has already been done in some districts of Aberdeenshire, would refuse to allow the progress through the county of infected or suspicious herds. With a few weeks' isolation of infected stocks, with stringent means adopted to prevent the importation of fresh virus, whether from the Continent or from Ireland, the disease would speedily die out, and neither licenses nor hindrances would then require to be continued in regard to the internal cattle traffic.

"The following are the resolutions recommended by the Warwickshire Chamber, and yesterday submitted for the approval of the Central Chamber:—

1. That fat cattle, sheep, and swine from abroad should be slaughtered at the ports of debarkation.

2. That cattle, sheep, and swine from the Continent of Europe, as well as from Ireland, unless for immediate slaughter should be subjected to six days quarantine and inspection before they be moved from the British ports at which they are landed.

3. That uniform and stringent measures should be adopted throughout Great Britain and Ireland to stamp out "foot-and-mouth" and other foreign diseases.

4. That neither cattle, sheep, nor swine should be removed from landing ports, farm premises, or pastures, to markets, fairs, or public sales, without special licence, given by duly appointed authorities.

5. That infraction of regulations should be visited by pains and penalties."

These remarks will serve to give you an idea of how much the farmers in England have come to dread these diseases when they not only suggest but urge on the government regulations all but prohibitory. From the monthly reports published in the "*Veterinarian*" you will observe that Cattle Plague, Pleuro-pneumonia, Foot-and-Mouth Disease, and Sheep-Pox are at present prevailing in almost all parts of Europe. Not only are measures necessary for the prevention of foreign diseases, but, it is also

necessary to make such regulations as will hold in check all diseases of a contagious nature in the country, especially glanders in horses. It is impossible to produce any statistics of these diseases either in this country or Canada, but I have no doubt our united testimony as practitioners from different parts of both countries will go far to show that it is not inconsiderable. As you are aware the American Government themselves were heavy losers by Glanders in the horses of the 1st Cavalry stationed at Benica, California, during last year. In almost every city in America cases of Glanders from time to time appear.

I speak more authoritatively for our own country and say that no restrictions are practically put upon the wholesale spreading of these diseases, and it is no uncommon occurrence to see glandered horses moved about on boats, driven into market towns, stabled in public stables, and offered at public auctions, without any interference authorized by government, and it is only when some poor groom dies a most horrible and loathsome death being inoculated by a glandered animal, that the authorities can be induced to take any notice of it, and I am told that in this country it is not any better.

The question which I wish more particularly to hear discussed to day is "what under present circumstances ought to be done to prevent the importation of these foreign diseases, and for the prevention and suppression of contagious diseases originating in the country?"

In my mind there is but one way and that is, for the governments to give to the Veterinary Profession that recognition which a science of such paramount importance deserves. Who are capable of advising government on matters relating to stock if not this profession? It is a standing reproach to this great country that so far we have received almost no encouragement at the hands of the government; true a few qualified members have occupied the position of Veterinary Surgeon to Cavalry regiments, but they have neither the rank nor pay which officers holding such important positions should have.

I will take the liberty of suggesting, that the ports of entry for cattle from transatlantic countries be limited to a small number, and that at each of these a quarantine be established where cattle, sheep and swine must be landed, and kept for a period, say of eight or ten days. That it be not permissive but imperative. The arrangements of the quarantine to be such as will allow of the complete separation of all suspected and diseased animals from the healthy—having isolated sheds for each class. The owner of the stock to pay for all the food and attendance during the time they remain in quarantine.

The government ought certainly to appoint a Veterinary department, both civil and military. The former to manage all matters relating to Veterinary Sanitary measures. That none be appointed to any position as inspectors or Veterinary Surgeons to regiments except regular graduates of recognized college. Each state should have its own consulting Veterinary Surgeon paid by the state who could be consulted and deal at once with any outbreak of disease.

I am proud as a Canadian to have it to say that our government have set yours a good example, in establishing a system of quarantine, and having but three ports of entry for stock, viz:—St. John's, Halifax, and Quebec, where all stock are detained for eight days, subject to close inspection, and every article accompanying them carefully washed and disinfected, and in this way we hope to be able to preserve our present happy state of immunity from disease, and I hesitate not to say that the trifle which it

costs the Canadian government is repaid a hundred times over by the very fact of foreign buyers being certain that we have no disease, and this fact must show the English Government the absurdity of subjecting our healthy stock to quarantine at their ports, and I have no doubt but that detention will soon be removed as it should be.

Gentlemen, I will not detain you by going into the details of the sanitary measures necessary in event of these diseases being introduced—but will simply indicate it by two words, which signify a very great deal in any country so unfortunate as to require it, "*Stamping Out.*" Prevent while we can so easily and avoid the necessity for the destroying process.

In conclusion gentlemen I would suggest to this association, that you should approach the government and point out the necessity for preventative measures being adopted, and urge upon them the importance of recognizing this profession, and ceasing to appoint uneducated men to positions of responsibility, while you have young men educated in science, both able and willing to fill the positions. Let our motto ever continue to be "*Vis Unita Fortior*" and instead of our noble science, for what science next to human medicine can be more noble than that whose object is the relief of suffering in those poor dumb animals, which God has given to us to care for, being looked upon as scarcely respectable, we must and will stand side by side with all the other liberal professions, and I certainly do think that if we can bring about the objects of this paper we will do much to deserve the lasting thanks of this great people.

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AMERICAN VETERINARY REVIEW,

APRIL, 1877.

ORIGINAL ARTICLES.

ENDEMIC OF CEREBRO-SPINAL-MENINGITIS.

BY PROF. A. LARGE, M. D., M. R. C. V. S. L.

—:O:—

The recent endemic of Cerebro-Spinal-Meningitis in the car stables of Brooklyn is very interesting in a professional point of view; and also in settling in my mind one or two points that I have long wished to clear up.

One is the probable period of *incubation* of the diseases; the other is the sanitary, or rather the *lack of* sanitary conditions operative in producing this disease.

But before alluding to these points, I wish to make some remarks on—what I consider—the *pathology* of Cerebro-Spinal-Meningitis.

As the name would imply, it has been considered, and is still considered by professional men both in human and veterinary medicine, as an inflammatory disease; one marked by well pronounced febrile symptoms; some few physicians rank it as belonging to the neurosis or functional diseases of the nervous system, without any *well-defined* or *constant* anatomical characters or post mortem appearances. I must, with the greatest respect, take issue with these ideas and differ from them, as I have for some years now, although when I first discovered and investigated it, and named it in horses years ago, I followed the popular idea of inflammation.

My idea of the disease, and it has grown in strength for several years past, as is known to many, is, first we have a blood poison, else the disease would not be endemic or epidemic; that this poison whatever it is, and without positively knowing, I shall allude to again under the etiology or causation of C. S. M., affects the ganglionic or sympathetic system of nerves, and that the train of symptoms, first, excitation of the circulation, leading to spasm of muscles, then to paralysis of them in different parts of the body according to mode of attack, is due to the loss of the governing power of the circulation, namely, more or less complete paralysis from the toxic effect in the blood of the sympathetic system; a condition of vaso motor-peresis. Everything points to it, even in the eye simulating somewhat the results, as in C. Bernard's operation of dividing the nerves before or behind the *Gasserian ganglion* the effect produced depending whether the sympathetic fibres have been divided or left entire. The

symptoms referable to the cord or membranes, depend how recent or remote the attack has been. If quite recent, and there is slightly increased capillary circulation of the part, there is increased function of the nerves, that is transmitted to the muscles they serve, and as a consequence they are affected, perhaps, first by tremors or *clonic* spasm, which may become *tonic* in character until the increase in blood of the membranes produces pressure, and paralysis is the result. In some cases that are fatal after an average duration, say about three days, we have appearances of exudation, simulating inflammatory products; while in the *fulminating* or *explosive* form, where death occurs in from five to ten hours, we have no local lesions, perhaps ecchymosis of serous membranes as in other blood diseases; death being produced in these short cases by the immediate effect of the poison in the blood, the system being completely overwhelmed with it.

The idea of this disease, in its ordinary form and of average duration being paralysis of the sympathetic system is new to most, and is scouted by some to whom I have given my ideas in the last five years; but others high in authority in the medical profession think there is reason in what I advance, particularly in connection with the success of treatment, both as a curative and preventive agent, that I have directed towards the supposed pathological condition; for I am more and more convinced, after an experience of seventeen years with this disease, that an endemic can be cut short, cases prevented, or if not, rendered mild, so they will yield to treatment, if cases still unaffected be placed under treatment.

Much has still to be learned about the diseases of the sympathetic to clear up many at present unknown pathological conditions. I have thought for some time, and within the last year or two, I have seen one or two articles published with the same idea, by others, that epidemic cholera was a disease of the blood, affecting the capillary circulation by its effect on the sympathetic, but in the opposite condition to what we find in Cerebro-Spinal-Meningitis. In the latter vaso-motor paresis from paralysis of the ganglionic system, in cholera the system is so stimulated by the poison and the small vessels so contracted that circulation is difficult; effusions take place; hence the discharges, cold surface, collapsed and cyanotic condition.

My reasons for not considering the disease either inflammatory or febrile are the pulse and temperature. The first (pulse) is but little, if any, increased in frequency and compressible in character. The second (temperature) is but slightly increased until towards a fatal termination, when it may reach $102\frac{1}{2}$ to 3 F., but I have seen the reverse condition, in a former endemic, six or seven years ago, an explosive case (duration only five hours). The temperature was only

95 $\frac{3}{4}$ F.; in the present endemic, one of the worst cases had a temperature of only 97 F., when I last took it, about ten hours before death; this case was about four days old at the time, and the temperature had not been any time more than one degree above the normal.

Some physicians even on an experience of several cases give a high temperature to this disease; but I have had experience of several cases in the human subject, and many hundreds in the equine race, and neither in one nor the other, saw a high temperature if the disease was cerebro-spinal-meningitis "*uncomplicated*." If complicated with some other disease, or there is an intercurrent disease that usually has a high temperature, we may have a temperature higher than is usually found in cerebro-spinal-meningitis, but lower than belongs to the disease complicating the cerebro-spinal-meningitis, viz.: In one case in the late outbreak there was one case doing well, relapsed and had as an intercurrent affection, double Pneumonia and Bronchitis; now to Pneumonia (acute) we usually have a temperature 104 to 5 to start with, in Bronchitis 104 to 6, but in this complicated case we had a temperature of 102 $\frac{1}{2}$ F.

Another case of Cerebro-Spinal-Meningitis with temperature of 101 for some days was complicated with Influenza with Bronchitis as local manifestation, the temperature rose to 105. On my first visit to the stables, I found one or two cases with a temperature of 105. I unhesitatingly pronounced them cases of Influenza, not Cerebro-Spinal-Meningitis, and modified their treatment to what was adopted in the other cases, and with good results.

After this long opening, I will give you a short history of the present outbreak, treatment, cause, result, etc., as far as known at present. On Wednesday, February 28th, several deaths occurred in the Green and Gates Avenue Car Stables, more deaths occurred on Thursday and Friday, how many I could not find out accurately, as different accounts were given. Friday afternoon, 3 o'clock, I was summoned, and found, I believe about forty cases attacked, nearly all in slings and sorry looking objects. I informed the President of the road, a well informed and very intelligent gentleman, what the disease was, that the cause was local, to get all of the well horses (or those not showing signs of disease, though no doubt as result proved, most had the poison in their system) out of the stable, either in circus tents or otherwise, and to lay up as many as he could, as I proposed putting "*all*" in the stable, about two hundred and forty (240) under treatment, to prevent more cases if possible or render them milder for success in treatment. I was requested to do the best I could under existing condition. Animals not to be moved, and still kept at work until reported sick, conditions anything but encouraging. But I accepted the conditions and went to work. I found the animals already attacked,

affected in several different ways, the same as I described in my pamphlet years ago, some showing symptoms of Paraplegia (Paralysis posterior extremities) most were of this variety, some were first attacked in the throat, paralysis of Pharynx (not sore throat) as shown by the water test, the manner of drinking I pointed out long ago, a few were first attacked in the head, manifesting brain symptoms. When taken on the road, some cases were marked simply by muscular tremors of different parts, (many of the fore extremities) others by symptoms of Colic, before the more direct symptoms manifested themselves. Those in the stables, with the paralytic symptoms of the part first, attacked as previously alluded to head, throat or loins, with all was obstinate constipation (fæces, hard, dry, and coated with mucus, when removed by hand). One case had violent tonic spasm of all muscles posterior to lumbar region.

Pulse in all cases, but little affected in number and compressible; temperature, except in cases already noted, one to two degrees above normal.

Treatment.—Powerful purgatives to overcome constipation, to try and wash out of the system some of the poison; relieve the bloodvessels by a serous bleeding; relieving blood pressure, passive congestion of vessels, and prevent escape of contents under the membranes; the use of Belladonna to stimulate the paralyzed sympathetic. I believe Belladonna one of the most powerful nerve stimulants we know of, particularly to the sympathetic acts on the walls of the small vessels constrict, and regulates the circulation through them. In cases where the heart's action was weak, Ammonia in conjunction, or if throat was affected, and swallowing was difficult as it would be dangerous to administer medicine by mouth, Atropine was injected hypodermically, and whiskey in gruel given per rectum. All the unaffected horses were placed under the action of Belladonna, and *all* cases kept under its influence for nearly two weeks, though having so many cases, I did not push the drug as I safely could have done, to three times the amount given if I could have closely observed each case myself. I gave strict orders about fumigating and disinfecting; chloride of lime, carbolic acid, and burning tar were freely used. I also directed close attention to ventilation, which I am sorry to say, was not closely observed at first, for I found in spite of treatment more fresh cases (from 10 to 15 a day) were occurring than I had a right to expect, although the weather was truly *March* the entire two weeks, with the exception of three days, I knew there was something wrong, so on the fifth night, I should have done it before, I paid a visit about 10 P. M., and found all the doors, windows and ventilators closed tight, the stench was abominable, the air stifling. I was surprised then we had managed as well as we had. I personally superintended the opening of the

windows, etc., kept them open, and the result was, we did not have in the next three days, as many fresh cases as in twenty-four hours previously; after that, thanks to belladonna and good ventilation cases became fewer, milder in character and at length ceased; beside this treatment, counter irritation or an *attempt* at it was tried, principally with mustard, but the article was poor and did not work. In my private practice I do not put much faith in external applications, except hot water when first attacked; there is no objection to them, but be sure of your article, and I will here add be sure of your purgatives; the aloes *Barbadoes*, must be good and used in free doses, give salts, if safe to assist its action, and use injections freely.

Eight days after my first visit and at my earnest appeal repeated day by day, two stables were built across the street into which about ninety animals, those that had not been attacked as yet, were placed, but three or four new mild cases occurred in these after removal, as the worst was then over, even under the disadvantages under which I had to work, of stables, weather and animals continuing to work in rain, snow, etc.

Results as far as known at last visit, between eighty and ninety animals "*unattacked*." There had been from first to last, as near as I could make out, one hundred and forty-seven cases, with seventy-seven deaths from different causes; over sixty of the remaining seventy cases doing well and likely to recover, and taking their exercise; in fact, a number of them at work doing one trip a day.

Among the deaths are to be included all that occurred prior to any one being called in; the cases hopeless before treatment adopted; deaths in three cases that relapsed from washing the patients and giving a chill, when previously they had been progressing nicely; three cases (two of colic) that were suffocated by the fluid medicine given to them being poured down trachea, while struggling.

These facts I think, speak well for the prophylactic treatment by Belladonna, that I have always so earnestly advocated since I first adopted it years ago; I consider the results remarkably good, under the disheartening circumstances that surrounded me, and which could have been and would have been much better, as I know by experience, under different conditions, if the animals could have stopped their work and been removed to a healthy locality, when I first suggested it, and put under the same treatment we did adopt. But while the officials of the company were willing to do all in their power, they were powerless in some points; the public had to be accommodated at whatever sacrifice to the company, and the latter responded nobly.

I had a great deal of trouble to carry on the preventive treatment. I was much opposed by some on the score it would do no good (I think the results showed differently), and by others that belladonna would

poison the horses; but I had them well under its influence, before I discontinued its use, which was occasioned by the fright to the officials and others, caused by two of the stable men dividing a sixty grain belladonna ball between them and swallowing it, thereby exciting great commotion, which was not lessened by the physicians in attendance, who stated that the men must die from the amount taken—thirty grain extract; I predicted at the time they would recover, which they did. I think it would take a very large dose of belladonna to fatally poison a man, if intelligently treated, as I know it would require an enormous dose to do so in the Horse.

While I am on this subject, I may as well allude to the different strengths of extracts made by different manufacturers. When a medical man prescribes *atropine*, he knows what he is giving and what results to expect. When he prescribes Extract of Belladonna, unless well posted, *he does not know* what he is giving, and as few medical men, even physicians, know the relative strength of different extracts, supposing them to be all alike. I append the following analysis by JOSEPH LEROY WEBBER, Ph. G. of Extracts purchased from different sources, and in the original packages. I think it important the results should be known to prevent working in the dark and the avoidance of errors.

	Percentage of Atropine.
Ext. Bellad. Alcoh. U. S. P.....	2.571.
Lazell, Marsh & Gardiner,.....	2.511.
Parke, Davis & Co.,.....	2.358.
Burrough Bros.,.....	2.358.
Henry Thayer & Co.,.....	1.836.
Tilden & Co.,....	1.798.
Chas. Ellis, Son & Co.,.....	1.759.
McKesson & Robbins,.....	1.697.
E. Merck, [Alcoholic Extract].....	1.488.
Geo. Allen & Co., [English].....	1.411.
Herrings & Co.,	1.179.
Mt. Lebanon, N. Y., Impissated Juice, 6 years old,.....	.904.
E. Merck, [Aqueous Extract made 1869,].....	.275.

Note the difference, some eight times as strong as others; if we use one we do not get the effect we want, while with others, if we do not know the strength and prescribe usual doses, we get stronger action than is desired.

With regard to the *causation* of Cerebro-spinal-meningitis, there is no doubt it is poisoned gases or emanations, depending on defective sewerage in cities, defective drainage of lands in the country, this is the opinion I have formed from repeated observation in different outbreaks, and when we have in association, close, ill-ventilated or closely shut up stables the result is disastrous. I believe with *good drainage* and *good ventilation*, for they must go together, this disease would seldom appear. The car stables where the last outbreak occurred, while they could be ventilated, were kept shut up too much, the

drainage was bad, they had no artificial connection with the sewers ; some years ago they were built on an old meadow below the grade of the surrounding streets, and the filth has since been accumulating under the floor, it was for this reason I was so anxious to have the animals removed, as I always suggest under similar circumstances, in order to *get away from the cause*. In the country, if attacked in the fields, particularly if the ground is low, remove to high ground or send animals to a distance if possible; if attacked in an old badly drained stable, have a shed put up at a distance for them to occupy. That the stable in this instance was at fault, and the cause local is proven by the fact, that the disease did not exist in any other roads belonging to the company, if we except several sporadic cases such as can always be found in hard worked horses, in cities, and also one horse borrowed from another road, where disease did not exist, was, after living in an affected stable for a while, attacked mildly with the disease, although his mate escaped; but they had both been under preventive treatment.

The season of the year has something to do in the production of Cerebro-spinal-meningitis, or in making its poison operative. The severest outbreaks occur a few weeks after the breaking up of winter, when thawing weather that will open the earth, etc., has existed for some time, and when the weather is still too cold to have doors and windows open for free ventilation, unless fires are used ; consequently we have poison being constantly generated, and as constantly accumulating in the buildings.

Period of Incubation. The outbreak occurred about *four weeks* after the change in weather alluded to above, but the mild case spoken of in the *borrowed horse* temporarily domiciled in the affected stable, occurred in about *two weeks*; but as they were all under preventive treatment, and some of the mild cases that continually occurred for the first ten days of treatment, in horses that had been living in the stables; the medicine they were under the influence of, may have had something to do in postponing the attack, beyond the natural incubation. It may be the physical condition and powers of the animal, may have some resisting power. Only about twenty-five fine, strong horses are included in the deaths, and *not all* from Cerebro-spinal-meningitis; the remaining horses were of the night work order; they were the first to be attacked, and succumbed more quickly to the disease. I should say that exposed, *untreated animals* would require about three weeks to incubate the disease, if their powers were not above par, although as stated in the report, *one* case was affected in *two* weeks. I base my opinion on a fair average.

VETERINARY EDUCATION.

BY D. McEACHRAN, F. R. C. V. S., V. S., EDINBURGH,

PRINCIPAL OF THE MONTREAL VETERINARY COLLEGE.

—:O:—

But a few years ago the popular estimate of the educational requirements of those who made a profession of that branch of medical science appertaining to the lower animals, was not by any means a high one; yet we find in the old works on Veterinary Science, both in the English and Continental languages even of a century ago, evidences of scientific investigation in the different departments of Veterinary science, which put to the blush the superficial acquirements of a large proportion of the so-called qualified graduates of the present day.

Take for instance the "Anatomy of an Horse" by A. Snape, published in 1683, or "Le Cours d'Hippiatrique" by M. Lafosse, in 1772, and we will find that these men were workers, men whose whole time and energies were devoted to study of the science; men who, were they to be told that in this enlightened nineteenth century, there could be men with presumption enough to pretend, or students simple enough to believe, that (even with the superior advantages now enjoyed) they could teach thoroughly in a few months, what took them a lifetime to study, would not believe it possible.

The history of the profession has been so often written, that I will only give it a passing notice till we come to the profession as taught on this continent at the present day. As everyone knows, in the old world the present enlightened epoch commenced in the latter part of the eighteenth century, and has made almost uninterrupted progress ever since. The establishment of the Royal Veterinary College at Lyons in 1761, by the great Bourgelat, whose name no one who is interested in veterinary science can hear without feelings of pride, that our profession should be honored by such a master-mind as that of Bourgelat; of him, Professor John Gamgee said: "In truth, Bourgelat was a great man. He wrote copiously and well on almost every subject of our science and art, materia medica, external conformation, anatomy, pathology and the art of shoeing. He was endowed with a clear intellect, he esteemed no labour too great which was essential to the attainment of his noble end. He was above no occupation connected with his adopted calling. Learned in philosophy, reared to the glories of the forum, Bourgelat combined the highest degree of intellectual capability, for the greatest disposition for practical application that it is

possible to conceive associated in any single veterinarian. Yes, book-worms ignorant of practice, and empirics destitute of maxims, will do well to think and dream of Bourgelat, as the monument testifying to what wonders a just exercise and combination of all the useful powers of the intellect can minister."

From this school emanated those pioneers of the science, who were attracted to Lyons by the reputation of Bourgelat, and who imbibing the ideas of progress from their master, when they returned to their homes set about taking steps to improve the standing of their profession by organizing educational schools, and in this way sprung up the many Veterinary Colleges to be found in every country in Europe, presided over by such men as Chauveau, Colin, Koll, Hering, Gurlt, Ercolani, Hertwig, Vella, Bollinger, Bouley, Reynal, and many others. On the continent of Europe, the liberal state grants have enabled the colleges to make much more rapid progress than in Great Britain, where everything of the kind is left to private enterprise. Prominent among the early workers for advancement in the science in England, are the names of Saint Bel, Coleman, Blaine, Youatt, Bracy Clark, Dick, Percivall, Sewell, Simmonds, and more recently, Gamgee, Williams, Fleming and others.

By the continued efforts of such men has this science gradually crept from out of insignificance to the position of a liberal profession, having a high standing as a science, and bearing directly on the prosperity of the state, the wealth of which consists in a great measure of or is dependent upon the domestic animals.

The progress of the science in the continental countries was more rapid and more marked than in Britain, as in the former each government encouraged the schools by liberal state grants, in many, not only were the necessary buildings and teaching apparatus provided by the government, but the salaries of the professors paid, while the English school had to be self supporting, receiving but little external aid; this in a great measure retarded its progress.

The want of government support, however, was not the only draw back to progress. Unfortunately for the profession for more than forty years, the only teaching school in England was presided over by a gentleman, who, so far as ability and scientific attainments were concerned was eminently fitted for the position; but unfortunately his weaknesses, jealousy, love of money, and egotism, despoiled his good qualities and crippled the progress of the profession by preventing such men as Blaine, and Bracy Clark from joining him and dividing the labors, and thus the best interests of the profession were stultified, and while Coleman accumulated wealth, the science made but little

progress, and thus too avarice, jealousy, and self conceit, robbed him of what might have been a bright and glorious reputation. Thus while Coleman possessed the ability to do much to give the infant science a high position, he preferred to exclude all those able contemporaries from laboring with him, least he should have to divide the profits of the college.

However, it cannot be denied that Coleman gave a high tone to the profession from his wealth and aristocratic associates, but this was a poor substitute for the thorough education and practical acquirements which ought have been insisted upon.

From the St. Pancras school emanated many graduates who have done much to foster and promote the science. Chief among whom was the late Professor Dick, the father of the profession in Scotland, who, under many difficulties and disadvantages, in spite of the opposition and jealousies of the English school founded the Edinburgh Veterinary College, and left an undying reputation; and as a legacy to the profession, he left his whole wealth, the college property, the excellent museum containing perhaps the best pathological collection ever collected by one man; and better still many pupils unto whom he had instilled his own love of the science, and desire for its progress.

It is a noteworthy fact, that as remarked by Professor Williams in his introductory lecture at the beginning of the past session. "That for the last twenty years, but one book has emanated from the London College, namely: 'Tuson's Pharmacy,' and that all the modern textbooks we possess are written by Edinburgh graduates, these are 'Strangeney's Anatomy,' Finlay Dun's *Materia Medica*, 'the various works of Mr. Fleming, Mr. Armatage, Sir F. Fitzwygram,' and Professor William's own excellent works. * * * * *

"Who are those, (he asks) who occupy the foremost ranks in contributing to the literature of our profession, or who fill the chairs of the schools in all parts of the world where the English language is spoken? I answer they are students of Edinburgh, men educated by Professor Dick or myself. In Canada the heads of the two colleges are D. McEachran at Montreal, who in thirteen years has established a large college, and is now receiving liberal encouragement from the Dominion; and Mr. Smith at Toronto, both students of Professor Dick. In the United States, Professor James Law at the Cornell University, another student of Professor Dick's, and at the Universities of Illinois and Massachusetts, two of my own students, Mr. Prentice and Mr. Lyman, the latter of whom studied at this college." In India, two of Professor Dick's, viz.: "Mr. Lamb at Bombay, and Mr. Hallen at Calcutta; while in Australia, Mr. Graham Mitchell, holds a high

position under the government of Victoria. It is also well known that the leading Veterinary Journal, in English, is edited by Mr. Geo. Fleming, a graduate of Edinburgh."

From the old college in Clyde Street, Edinburgh, have sprung the new Veterinary College at Edinburgh, with Professor Williams as principal; and the Glasgow Veterinary College, with Professor James McCall at its head. It will thus appear how great the benefits are, which the profession has derived from the teaching of the shrewd clear headed William Dick.

The scientific progress which has been made by the profession in all countries, during the last ten or twelve years has been very great. Then, any young man be his mental, moral, physical or educational qualifications what they may, all he had to do was to enter his name, pay his fees, and take his place in the lecture-room, either at Edinburgh or London; the only subjects which the curriculum included, were Veterinary Anatomy, Practice of Veterinary Medicine and Surgery, Chemistry, Physiology, and Materia Medica; and two winter sessions of six months each only, were required to qualify for examination; in this way many men who had no educational training, no taste for study, men whose highest aspirations were limited to cramming enough to enable them to pass the examination were admitted to the detriment of the profession. However the rapid development of all arts and sciences, and especially the increased value and importance of the domestic animals, gave an impetus to the profession, and demanded a higher educational standing, a longer and more thorough curriculum to enable the Veterinary Profession to keep pace with other liberal professions. In accordance with this progressive spirit we find that during the past summer the Education Committee of the Royal College of Veterinary Surgeons adopted the following rules:

1st. "That the year be divided into three terms, viz.: two Winter and one Summer term. That each Winter term consist of not less than eleven weeks, and the Summer term of not less than eight weeks.

2d. That each candidate for the diploma of the Royal College of Veterinary Surgeons, shall be subjected to and pass not less than three examinations before obtaining his diploma.

3d. That no student be eligible for the first examination, until he has studied three terms at a school affiliated with the Royal College of Veterinary Surgeons.

4th. That no student be eligible for his second examination, until he has studied five terms, nor unless he has studied two terms after he has passed his first examination.

5th. That no student be eligible for his third examination, until he has studied eight terms, nor unless he has studied three terms after passing his second examination.

6th. That at the first examination, a student be examined in *Materia Medica*, Pharmacy, and in writing of prescriptions Chemistry, Toxicology, and Botany.

7th. That at the second examination a student be examined in the Anatomy of the Horse and other Domestic Animals, Physiology and Histology.

8th. That a student at his final examination be examined on Morbid Anatomy and Pathology. Diseases of the horse, including Veterinary Medicine, Surgery and Therapeutics. Diseases of the other Domestic Animals, including Veterinary Medicine, Surgery and Therapeutics, also that he undergo a practical examination as to the soundness and Diseases of Horses, and the other Domestic Animals, and in writing certificates."

It will thus be seen that the course of instruction is spread over three whole winters and two summers, that is, supposing they succeed in passing each examination.

Before entering they have to pass a matriculation examination in writing, reading aloud, English Grammar, dictation, the simple and compound rules of Arithmetic, and Simple rule of three. He can also if desirous of doing so, elect to be examined in any one or more of the following subjects. 1st. Higher Arithmetic, including Vulgar Fractions, Interest and Proportion. 2d. Euclid Books one and two. 3d. Algebra to Quadratic Equations inclusive. 4th. English History. 5th. Geography. 6th. Natural History, (Botany, Geology or Zoology). 7th. Physiology. 8th. Chemistry. 9th. Physics. 10th. Latin, Greek, French, German or Italian Languages.

Although this is an improvement on the former curriculum it is far from being as complete as on the continent. In Prussia for instance, "the education for military service is divided into two classes. For civil employment, the Diploma of the highest class alone is obtainable. The course extends over four winter and three summer sessions. The curriculum includes distinct courses in great part of six hours weekly, and the more important of them repeated in different sessions on Anatomy, Chemistry, and Natural Philosophy, the practice of the forge, Practical Anatomy, Natural History, Botany with excursions, Physiology, *Materia Medica*, Pharmacology, Surgery, general and special Pathology and Therapeutics, Pathological Anatomy and the rearing of animals, with the study of their external configuration.

To these are added courses of clinical training, while opportunities are afforded for practice in the performance of operations. A course

of veterinary jurisprudence with even a course on the history of the Veterinary Art completes the comprehensive scheme of instruction.' In Sweden the course is almost similar and extends over four years, including a summer and winter session. At Turin, Berlin, Toulouse, Lyons, Alfort, Vienna, and other continental cities may be seen large establishments embracing Lecture-rooms, Dissecting-rooms, Museum, Library, Laboratory, Botanic gardens, Forge, Hospital, the latter provided with foot baths, Turkish baths, slinging apparatus, and every adjunct to a Veterinary Hospital.

In the next number we will consider the profession in America as it should be and as it is, and some suggestions how to place it in its proper position.

(*To be continued.*)

EFFECTS OF COLD.

Read before the New York Veterinary Society, Jan. 25th, 1877.

by A. A. HOLCOMBE, D. V. S. Plainfield, N. J.

MR. PRESIDENT AND GENTLEMEN OF THE SOCIETY :

Cold is the absence of heat. It is simply one of the sensations we experience when subjected to a temperature much lower than the normal temperature of the body, or to a temperature considerably lower than that accustomed to. The human body is susceptible of very great variations of temperature. A variation of one hundred and fifty degrees is easily withstood by a person in health. The change must be more or less gradual to prevent deleterious effects. A *dry* cold atmosphere is more easily withstood, than a *moist* one at the same temperature. Cold, according to the way it is employed is a refrigerator, a tonic, an excitant, a depressant, or an anæsthetic. The application of cold withdraws heat from the body, and cools both the surface and the deep parts. The blood coming through the capillaries near the surface is reduced in temperature, and being constantly carried away and as constantly replaced by fresh blood, the entire mass of this fluid soon undergoes a perceptible depression of temperature. If this reduction of temperature is continued, death ensues, and the fluids harden into ice. Patients have been known to remain for six days in a stiffened condition, due to the effects of a low temperature, and ultimately recover. In these cases there are only slight appearances of life exhibited. The pulse can hardly be felt,

the heart beat is almost inaudible, respiration is scarcely perceptible, consciousness is lost, and the body is icy cold. The vitality in this condition is very limited; the first effect of too great cold is to diminish the vitality of the part to which it is applied. The capillaries of the part are strongly contracted so that a limited quantity of blood flows through the part. Nutrition is thereby impaired or may even be entirely suspended; if there is an entire suspension of the nutritive process, gangrene will of necessity follow, for there has been a destruction of the vitality of the part. Since all functional activity is exhausted by over exertion for a lengthened period of time, the capillaries after having been strongly contracted for a season, undergo paralysis and are distended with blood. In some instances the capillaries never regain their power of contracting and ever remain dilated. This condition of the capillaries will frequently be noted in frost-bitten noses—the nose ever presenting a red or reddish blue appearance. Too great cold will cause vesicles to raise on the surface of the body as well as too great heat. These vesicles differ from those caused by heat, in that the serum which they contain is usually bloody. When a part of the body becomes completely frozen, it will snap off like a pipe stem or piece of glass. Subjection to a low temperature may cause complete depilation in the horse without raising a vesicle. In the winter of 1875, a young black gelding that had been laid up for two weeks from scratches, was taken out one day before a sleigh when the temperature stood at zero; after about two hours exercise, part of which was fast, and the rest slow, he was returned to his stable and warmly clothed, as he had been clipped some three weeks before; in twenty-four hours time he showed signs of indisposition, and in six days was naked except the limbs, mane and tail. The horny layer of the epidermis peeled off with the hair, and the exudation into the skin gave it a thickened velvety feel. What caused the hair to fall off? Was it the direct action of the cold on the hair, or were the blood-vessels supplying the hair bulbs so strongly contracted by the cold, for a length of time sufficient to destroy the vitality of the hair, because of the absence of nutrition? The loss of the coat never seemed to injure the animal in any way, and in a few weeks time was replaced by a new one.

Frost bites occur most often in veterinary practice upon the legs of horses worked in cities, where salt is placed upon the snow and ice to melt it. The salt causes the snow to assume the liquid form at which time it absorbs a certain amount of latent heat; this heat is taken from the nearest object, and when that happens to be the feet and legs of a horse, the temperature of the parts is reduced so as to destroy their vitality.

The therapeutical effects of cold are more important to us in this climate than is the consideration of its devitalizing powers. Cold is often applied to the surface of the body for the purpose of reducing the temperature; the general cold bath may be made to reduce the temperature of the body as much as ten degrees Fahrenheit; in the extremities it may be reduced even lower than this. The normal temperature of the body is speedily restored after being reduced by the cold bath; the extremities may remain cold for some hours. A cold bath of course abstracts heat from the body, for the water of the bath becomes warmer, but in health this loss of heat is rapidly restored. A *moist* hot skin is much more comfortable than a *dry* hot one. This is probably due to two causes; first the relief experienced from the blood-vessels of the sudoriparous glands unloading themselves by the production of sweat, and secondly by the suppleness given the skin from the presence of the perspiration, and pleasant cooling sensations due to evaporation. The lowering of the temperature by means of the cold water bath or cold sheet, in fever stricken patients is considerable and durable. There is no doubt but what the cold abstracts more or less heat from the body, but what prevents the temperature from rising to the previous standard? Does the cold prevent the unnatural formation of heat? If so in what manner does it accomplish this result? If the elevated temperature of fevers is due to the active tissue changes taking place, then will the application of cold, I believe, in a measure prevent the unnatural formation of heat, and it does so by giving to the nucleus an increased power of resisting unnatural influences, thereby diminishing the activity of the tissue change. Cold when judiciously employed is a powerful tonic. A cold climate is both tonic and bracing. The loss of heat which takes place during the exposure of the healthy body to cold is compensated for, and the temperature maintained by increased combustion. There is no doubt but what there is increased oxidation of the tissues, for there is a greatly increased quantity of CO^2 thrown off by the lungs. On exposure to cold the lungs absorb more oxygen than at other times, so that the processes of construction and destruction are more rapid than in a warmer temperature. Hence, a more vigorous health is maintained in a cold climate, for when destruction of the tissues ceases, further assimilation of the nutritive materials of the blood comes to an end; *formation* in the adult being limited by the *destruction*. The destructive changes take place in proportion to the amount of oxygen absorbed; hence, when this gas is exhausted, many products of destruction remain only partially oxidized, so that further tissue disintegration ceases, and assimilation as a matter of course is suspended.

Cold when applied locally may act as a local tonic. If too long continued it depresses the part; it does so by the influence of its action on the capillaries. Intense cold applied to a part of the body for a few minutes will abolish sensation, therefore it becomes, under these circumstances, an anæsthetic. Applied locally and suddenly cold acts as an excitant, as seen when applied to persons who have fainted or are narcotized. The application of cold to the surface of the body lessens the perspiration in proportion to its degree. It does so by driving the blood from the skin and surface of the body, to the internal organs where it flows in increased quantities. In man albumen is often found in the urine during a cold bath, and it can probably be attributed to the congestion of the kidneys which takes place, for after the bath it speedily disappears.

Sudden changes of temperature, *i. e.* from warm to cold, increases the quantity of urea and sulphuric acid in the urine. The impression which the forcible impact of cold water makes upon the nervous system is sometimes very great. It may be successfully used in treating "poll evil." When the swelling is first manifest, the water should be allowed to fall upon the "poll" in a considerable stream, from a height of about ten feet; it will in many instances prevent the formation of abscess, and in others limit the amount of suppuration, results no doubt always to be desired. The shower bath or cold sponging is recommended in the treatment of children suffering from rickets. It would evidently have the same beneficial effects upon the domestic animals when similarly affected. The cold douche is of great service in arousing a patient from the stupor of opium poisoning. The cold applied to the head in this manner removes the conditions on which the stupor depends; consciousness after a time is restored and the breathing becomes natural again. The water should be poured upon the head from a good height, so as to produce as great a shock as possible. The cold douche is an excellent local tonic to individual parts of the body, as in stiffness of the joints remaining after slight injuries; or in rheumatic arthritis.

The application of cold is especially beneficial in all injuries where there is more or less devitalization of tissue—as in contused wounds. It acts as a tonic upon the tissues which are not too much injured, and tends to limit the febrile reaction which follows the injury, while it does not interfere with the healing process. In the treatment of Laminitis, *cold* is an indispensable adjunct to the internal treatment.

It is recommended and extensively used in the treatment of Lymphangitis; but my own experience is that warm fomentations do much better.

As a haemostatic the virtues of cold require no commendation from me. In the treatment of fevers I believe if we could use the cold water bath as easily as they do in human practice, we would find it a valuable agent in reducing the temperature. Many of the symptoms and therefore the dangers of fevers depend on the elevation of the temperature. A high temperature affects the organs in two ways; it first depresses or entirely abolishes their function, and in the second place it produces fatty or parenchymatous degeneration of all the tissues. This degeneration takes place especially in the liver, kidneys, heart, blood-vessels and voluntary muscles. To successfully combat these effects of high temperature, we must evidently *lower* or *prevent* the undue development of body heat. If we could use these baths early in fevers we might prevent the oncoming of these degenerative changes. By readily lowering the temperature we would reduce the frequency of the pulse, strengthen the heart's action, and so avert the danger of failure of the heart and hypostatic congestion. At the same time it would improve digestion and assimilation, and thereby promote the general nutrition of the body. Cold applied to the back and loins is said to be of service in Spinal Meningitis, but I have never seen it used. Ice applied to the head in diseases of the brain is no doubt often of great service; I doubt very much whether young practitioners at least, fully appreciate the therapeutical effects of that remedy always at hand—cold water. They are too apt to want to use something with which the *groom* is unacquainted; they seem to fear that their qualifications will be questioned if they recommend anything so simple as cold water. No doubt this will be the case sometimes, yet it should not deter us from making use of so cheap and efficient a remedy; there is hardly a local inflammation in which it cannot be used to good advantage.

In many cases of slight lameness coming on without any known cause—where there is a slight elevation of temperature without any other pathological condition to be detected, the use of cold water for a few hours, or at most a few days time will effect a cure just as readily and permanently as blistering or the use of liniments; that it is more difficult to use in many cases in veterinary practice, than it is in the practice of human medicine, I admit, yet there are very many cases in which it could be used to advantage where it is now neglected for the use of something more easily applied but less efficient. Although I am not a Hydropath, still I believe the future will find water—both warm and cold, occupying a higher position upon the list of veterinary remedial agents than it occupies to-day.

EDITORIAL.

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EXPLANATION.

At the 13th annual meeting of the United States Veterinary Medical Association, it was decided that the *American Veterinary Review* be published in the months of January and July of each year, making it a semi-yearly; with the intention of recording the transactions of the association, and publishing cases of interest which might be brought forward by members of the profession. To that effect the first number was issued with the beginning of the year.

This was received in such a manner by the profession all over the country, and all copies were applied for so rapidly, that it was found necessary to have a second edition of that number printed, which had been almost entirely distributed.

From the information which we have been able to collect from the letters which we have received from all parts of the United States and Canada, encouraging and promising to assist the steps thus taken by the association, we became convinced that it was a desire of many veterinarians of this continent, to have at their disposal a means of corresponding and discussing veterinary matters together, and that a semi-yearly paper would not fill the need of our profession.

For this reason, at the semi-annual meeting of the United States Veterinary Medical Association, we proposed to publish the *Review* monthly, and according to resolution passed at that meeting the second number is issued.

It is our intention not to have our periodical limited to the report of cases or discussion of papers; but to embody in it any subject which is connected with veterinary science, and therefore, we will try to furnish our readers with articles of interest to the Veterinarian, to the Agriculturist, to the Legist, and to the Sanitarian; leaving our columns open to all who may be interested in the elevation of veterinary medicine in America, and with the hope of receiving their kind support and assistance.

The *Review* will be published after this, monthly; forming at the end of the year a volume of over five hundred pages.

The subscription dated from this number will be \$5.00 a year; 0.50 a single copy.

All communications, books for review, etc., will be addressed to the Editor, 141 West 54th Street, New York. Anonymous letters and articles will not be inserted.

Morbid Specimens may be forwarded to the Editor, and with the consent of the owner, will be registered and placed in the collection of the American Veterinary College.

SANITARY MEASURES.

At the beginning of the year, news of an outbreak of Cattle Plague in England was received through the press and soon our veterinary journals gave notice of the different orders which were at once issued to stop its spreading.

Imported by cattle from Germany to Hamburg, and hence to Deptford, three days after they left Holland, though care was taken to prevent communication between healthy and sick animals, the disease found its way to London and might have done much harm had not the measures which Great Britain learned so dearly to establish, been at once enforced.

At the same time France, who is organizing a Sanitary Service for her whole territory, issued also through her Secretary of Agriculture a decree prohibiting the importation of cattle, sheep and goats from Germany, England, Austria, Russia and Turkey.

Who will, can, is the motto that Mr. Bouley applies to the prophylaxy of cattle plague, and to-day he asserts that excessive measures are not necessary to control that disease, as after all, the Rinderpest is too well known to Veterinarians; and while severe precautions, well reenforced, are sufficient to stop the spreading of the disease, commercial interests ought to be considered in the promulgation of the sanitary acts; and for this reason he asks if it is not exaggeration to prevent the importation of sheep or goats, as long as only a few cases have shown themselves, almost sporadically in Germany: importation of sheep from Russia has been going on in ordinary circumstances and no accidents as far as he knows, ever took place in France or other countries.

Belgium followed the example of France and also issues a decree preventing the importation of cattle, sheep, &c., coming from England, Russia, Etc.

When we look at the precautions that European countries are taking to protect their live stock—when we read the advices that their Veterinarians are giving to assist the work of the proper authorities,

and when we see the efforts that they make to check the spread of diseases by the organization of Sanitary Veterinary Boards, we cannot help reflecting as to the condition of this continent, where contagious diseases are so prevalent in some of the states, almost without preparation to check their spreading.*

The advice given by Professor Law and McEachran, in their papers which we published in the first number of the *Review*, ought not to be overlooked, and it seems to us that the duty of all veterinarians of the country is to rally together to obtain from our government laws to organize a Sanitary Veterinary Board, for the protection of our live stock.

RABIES—ITS TREATMENT WITH XANTHIUM SPINOSUM.

There is probably no disease for which remedies of all kinds have been recommended as panacea as hydrophobia, but unfortunately none as yet have stood the test of proper experiment.

A short time ago Dr. Grzymala of Podolia, published the statement that he had cured about one hundred cases of Rabies, with the administration of Xanthium Spinosum. These results were so wonderful, and the authority of Dr. G. had such influence upon the belief given as to his success, that experiments were started to test the power of the new remedy by Professor Trasbot and Nocard of Alfort.

* As we go to press the following order from the Secretary of Treasury has been issued:

IMPORTATION OF LIVE STOCK.

A CIRCULAR FROM THE TREASURY DEPARTMENT.

WASHINGTON, D. C., March 28th, 1877.

The prevalence of rinderpest in Germany, and of that malady and the foot and mouth disease in England, has led this department to prohibit the importation of neat cattle and the hides of neat cattle from those countries into the United States. By reason of the proximity of Holland and Belgium to Germany and of Ireland to England the prohibition is hereby extended to embrace such importations from those countries. The department is informed that rinderpest is infectious as well as contagious, and that sheep, horses and swine may be media for its communication. It is also understood that the litter upon which these animals sleep spreads the disease.

While the department has no authority under the law to prohibit the importation of horses, sheep and swine, it desires that all measures practicable be taken on the arrival of such animals from the countries named to prevent the possibility of contagious diseases being communicated thereby to stock in the United States. It is suggested that horses and swine coming from any of the countries named be examined by experts and if necessary quarantined for a reasonable time; to which I apprehend that importers, as a rule, will offer no special objection, as it is to the interest of all concerned to prevent the spread of this disease in the United States. Collectors and other custom officers are therefore directed to take such action in cases of this character as in their judgment may be necessary.

Blooded stock coming from the countries named may be admitted when accompanied by a consular certificate of non-infection as authorized by the department's letter of the 16th of March last. It being presumed that such stock is selected with care and that it would not be taken from herds which are infected with the diseases mentioned.

They inoculated 11 canine animals with the saliva of a living mad dog; some were placed under the administration of the *Xanthium*, and others were left alone to prove the virulency of the saliva. All these animals died—some showing unmistakable symptoms of hydrophobia, and amongst these, one after an incubative stage of thirteen days, and another of eighty days—the first took about four ounces (125 grammes) of the powdered *Xanthium*, the other about nine pounds (four and a half kilogrammes).

These experiments demonstrate most evidently the inefficacy of the *Xanthium Spinosum*, as far as being a cure for Rabies—it will not cure it—it will not prevent its development.

After all the only trustworthy precautions in case of bites remain yet in the old ones, viz.: Suction of the wound, ligature above the wound, circular excision of the bitten parts, and when possible immediate deep cauterization.

ENTEROTOMY.

The Veterinary Journal of March, gives an excellent article from Mr. A. Harthill, V. S. of Louisville; Ky.; speaking favorably of the puncture of the intestines in case of flatulent colics in horses. This is by no means a new operation, as we find it already mentioned by Vegetius, by Roem and Bouwinghausen in 1776; by Bourgelat and Chalbert, and more recently by Brogniez, Rey, Herring, Charlier and others; still as Mr. H. says, it has found but little application in the hands of the Veterinarian. Why? is a question difficult to answer, unless it is due to the fear of possible complications following, as far as the peritoneum is concerned, by its susceptibility to inflammation with fatal results. Mr. H. reports one special very interesting case, and mentions several others, which proved successful by this treatment, and there is no doubt that much good can be derived from it; complications are rare and exceptional. The right flank is undoubtedly the place to perform it, and the animal can be as well kept standing up as to be thrown or placed in the stocks; not being a painful operation, and done rapidly the animal will not defend himself. Whether it is to be done early or late in the development of the disease is a question which is yet, we believe undecided. Some recommending it almost from the onset of the disease, others advising to wait until the effects of other means of treatment have failed, or even only in extreme cases. At the last meeting of the N. Y. Veterinary Society, a paper from Mr. J. Myers, Jr., D. V. S. of Cincinnati, Ohio, was presented upon that subject, which will be published in full in our next number.

ABSTRACTS FROM FOREIGN JOURNALS.

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LUXATION OF THE TRAPEZIUM.

The author reports this case in saying that a black mare being out hunting was found lame on the near knee, which on being flexed, showed that the trapezium could be easily moved upwards and outwards, the parts being much swollen and painful round the knee; still the lameness was not excessive—fomentations, rest and subsequently cold water and evaporating lotions were recommended, instead of blister at first suggested, and in a fortnight the lameness had disappeared; however the trapezium continues slack, and will probably remain so to the end of her life. (*Veterinary Journal*).

ANEURISON OF POSTERIOR AORTA—RUPTURE—DEATH.

This took place in a stout, fat pony, good roadster and very ambitious to work. After a long journey, and when tired he would knuckle over his near hind fetlock as if seized with cramps; he showed this symptom for some months, but for a short time previous to his last ailment, has been somewhat sluggish. One day he was found down and unable to get up, with some colicky pains; when medical attendance came he was found standing in his stall, with ears cold, pulse quick and just perceptible, mucous membranes pale, and by rectal examination presented a large pulsating tumour near the end of the posterior aorta. He fell dead a few hours after—on post-mortem a large quantity of bloody fluid was found in the abdomen, and much clotted blood; a large clot measuring a foot and half in length, was held by the surrounding tissues in apposition to the inferior surface of the posterior aorta. Mr. Fleming says that the walls of the vessel contained bony deposit, which rendered it like a shell, and prevented its collapse while in an empty state. (*Veterinary Journal*).

SUBCUTANEOUS INJECTIONS IN THE TREATMENT OF OMBILICAL HERNIA IN CHILDREN.

Dr. Luton has just been applying to the treatment of congenital ombilical hernia in children, the method of subcutaneous injections with local effect, and with such a success that it is to be hoped that

put in practice for the exomphalous of colts it will give the good results of the cauterization with nitric acid without its dangerous sequelæ. In a first case it was for a little boy seven months old, always crying and coughing. The umbilic well bandaged from the time of birth as usual had not retreated sufficiently, and a little hernial tumour developed itself, easily reduced but soon reappearing as soon as pressure was removed. Bandages were of no avail—on four different points, at each corner on the umbilic, we may say, 10 drops of a solution of common kitchen salt saturated and filtered were injected; as many little indurated tumours soon developed themselves, but no suppuration; a compresse and a bandage made the dressing. About a month after, the resolution was perfect and the hernia removed.

In a second case the hernia was very large—the general conditions of health left but little chance of spontaneous and permanent reduction. To the left and right of the umbilic in the cellular tissue an injection of saturated solution of chlorure of sodium was made; these were followed by little abscesses, which were opened with the lancette. The cicatrization was quick and simultaneously the umbilical sac emptied itself and the hernia cured.

In a third case the child had a left inguinal hernia. In the cellular tissue, on a level with the external inguinal ring about 5 drops of saturated solution of chlorine of sodium were injected; but though at first this seemed to be successful, the hernia soon returned. Whether the injection was not sufficient or ought to have been renewed, the attempt was not made, being objected to by the parents.

A fourth case of umbilical hernia in a very healthy boy. An injection was made on each side of the umbilical opening, a bandage applied and in a few weeks the hernia had disappeared.

The interpretation of this method is undoubtedly analogous to that of the treatment by cauterization with nitric acid used in veterinary medicine, and as Mr. Bouley remarks, the irritation produced by the injection, stimulating the tonicity of the tissues and thus the contraction of the ring, is not the only explanation to give of the result obtained, but the mechanic action produced by the injected fluid and the œdema which follows its presence, thus pushing back the intestines in the abdomen, has no doubt much to do in allowing the closing of the ring; which in other way is kept open by the presence of the protruding intestines and therefore cannot close.

It is a method that veterinarians practicing in breeding districts will do well to try, remembering, however that probably the quantity of liquid injected would be for a colt, either probably too small, or not irritating enough.—*Recueil de Med. Vet.*

FRACTURE OF THE NECK OF THE FEMUR.

After stating that only four similar cases are on record,—one by Rigot, one by Fromage de Feugre, a third by Leblanc and a fourth by Dupuy—Mr. Nocard reports two cases: First. A vigorous animal, seven years old, was thrown to be fired for spavin; when the operation was finished he was allowed to get up, which he did without effort. In going to his stall he tried to jump over a small gutter in front of him, slipped violently with his off hind foot, made a bolt forward and fell very heavily. In rising, the right hind leg was kept up, the animal being unable to put it on the ground; he was conducted to his stall and in a few minutes the thigh became the seat of an enormous swelling, the leg being very painful to the touch. Diagnosis, rendered difficult by the swelling of the parts, was made by the excessive mobility of the extremity, its great retraction, the excessive pain when the limb was moved and the impossibility of carrying weight upon it—the animal died. On post mortem a comminuted fracture of the neck of the femur was found extending from the cartilaginous rim of the head to the point of insertion of the psoas muscles. The femoral artery was entirely lacerated and an enormous clot surrounded the parts, seat of the lesion.

Second. An Irish cob, who had shown lameness on the off hind leg for some months, was thrown down to be fired for indurated windgalls of the extremity. After much struggling during the operation, the hobbles were removed, but he vainly tried to get up, although no fracture of the vertebral column could be detected. He died during the night, his death being attributed to nervous exhaustion. The post-mortem revealed a fracture of the neck of the femur—the femoral head remaining attached to the cotyloid cavity by the inter-articular ligaments.—The neck of the bone, and all the part of the internal face of the femur, included between the cartilaginous edge and the superior part of the trochanter were crushed in numerous pieces; a thick layer of the bony vegetations round the external face of the femur, indicated the repairing process of an old incomplete fracture of the bone, thus explaining the lameness of previous time, which had resisted all forms of treatment. (*Archives Veterinaires.*)

 CASTRATION WITH THE ELASTIC LIGATURE.

Under this heading Mr. Rossignol of Melun, (France,) reports a series of experiments which he had made upon rams and one horse

with excellent results. The use of the elastic ligature in human surgery for the removal of the breast of an anhemic woman, suggested to him its use in Veterinary Medicine, and first he employed it to remove squirrulous mammae of sluts, and large warts in horse and cattle. Afterwards he applied it first to castrate several rams, and then an old stallion.

The *modus operandi* for the stallion was as follows:—the animal being cast and secured in the usual way, was castrated by the covered method, the scrotum and dartos alone being incised, then a waxed fine twine is placed parallelly to each spermatic cord, both being afterwards surrounded by an elastic ligature made with a vulcanized India rubber tube of the size of a quill. Elongated as much as possible and twisted three times round the cord and the twine, this ligature was secured by a double knot, over which the twine is secured and also tied, and the animal is allowed to get up. Two hours later the testicles are of a dark purple color and moved up and down by spasmodic contractions of the cremaster—no colics. Forty-eight hours after the testicles are black, their substance soften and oozing through the envelops, the wounds have a very offensive odor; one of the testicles drops down while the animal takes an hour outdoor walk. Horse is dull, and when standing raises convulsively one of his legs now and then; the second testicle falls off the next day, (3d), much swelling of the sheath. The wounds are antiseptically dressed, the swelling of the sheath. scarified and seventeen days after, the animal is in full convalescence. Similar results were obtained in the experiments upon the rams; the only positive unfavorable results were death in one ram by gangrene, and one by traumatic tetanus.

The claims of this new mode of operation, are 1st. Less pain after the operation. 2d. Less difficulty in walking. 3d. No stretching of the cord. 4th. The wound is kept open. 5th. No chance of hernia. 6th. Suppression of hemorrhage. 7th. Diminution of chance of gangrene and of peritonitis. 8th. No danger of laceration of the cord. (*Archives Veterinaires*).

DIAGNOSIS OF PREGNANCY.

In a clinical lecture delivered by Professor St. Cyr, this eminent veterinarian called the attention of his class to the beatings of the heart of the foetus as a means of recognizing the state of pregnancy in the domestic animals. After mentioning the history of the first discovery of this heart action in women by Mayor of Geneva, in 1818, then the mentioning of the same by Lafosse, and later by Lanzillotti, Buonsanti, Hollman and Saake, he describes the phenomena as follows:

“Apply your ear upon the abdominal walls on the right side, a little below the flank, and listen attentively. You soon will hear a succession of light repeated noises, perfectly rhythmatized, separated by a moment of silence and perfectly repeating the beatings of the heart auscultated in the adult. These noises are very weak though very distinct, when with attention, once they are caught by the ear. They resemble much the tic-tac noise of a watch; evidently these are the cardiac noises—not of the mother, they are too rapid and more numerous—nearly double in a given time.”

The significance of this phenomena is of a great importance, as to the live condition of the fœtus; it is claimed that these noises are audible after the 25th week or about the 6th month of gestation, though they may be heard sooner.

This is a precious and new sign for the diagnosis of pregnancy, which will be of great advantage to the practitioner. (*Journal de Zootechnie—Lyon*).

REPORT OF CASES.

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PURULENT COLLECTION OF THE RIGHT SUPERIOR MAXILLARY SINUS—ODONTOMA IN ITS CAVITY.

This is the case of a black mare, aged, which was sent to the American Veterinary College by Mr. Vining of New Haven, with the following history:

“This mare three years ago had the *epizootic*, after being very sick, she was turned out and recovered, but two years ago she began to discharge from the right nostril—more at times than at others—more offensive in odor in some occasions—and very often apparently subsiding; she had been condemned as glandered.

On admission, March 22d, she presented a condition corroborating the history. She discharged from the right nostril a white, thick, purulent matter, scarcely offensive—the glands of the maxillary space are not swollen—the pituitary membrane healthy. The face on the right side, immediately from the zygomatic crest and maxillary spine upward presented a convexity which extended over the lacrymal. This was exceedingly sore on pressure and dull on percussion—the other side of the face was healthy; the general health was as good otherwise as could be desired.

Diagnosis—purulent collection of the sinuses not due to diseased condition of the teeth which had been carefully examined and probably sequelæ of the catarrhal influenza with which she suffered 3 years ago. Prognosis—favorable.

Prepared by 24 hours diet, she was on the morning of the 23d, brought forward for the operation of trephining to be performed standing up; but she defended herself so much that it was found necessary to throw her. First an incision about $2\frac{1}{2}$ inches long was made parallel to the maxillary spine, and another brought upon it obliquely from the inner angle of the eye; the skin, muscle and periosteum carefully dissected and pushed upwards, the facial portion of the zygomatic bone was trephined and the sinus open. A thick congested membrane made its appearance which being excised, allowed the pus to escape. So as to clean the cavity an injection of carbolized water was made, and at the bottom of the sinus a bony surface, enamel in appearance was felt. Being loose in the sinus, removing it was tried, but its enormous size would not allow it to pass through the opening of the bone, which had to be enlarged with bone forceps; after much difficulty it was brought out. Pus then was discovered underneath which was also washed out, and then another bony tumour of the same kind—this second was followed by a third; both being removed, at last the cavity was found perfectly empty and clean. Being thoroughly washed, the wounds were brought together by stitches—a tent of oakum left at the commissure of the two incisions—compresses of cold water applied and the mare taken to her stall.

A large number of small broken pieces were found and saved for further examination. The three large pieces were each surrounded by a large and thick, highly vascular membrane which was quite adherent to the outer surface of the three lumps, and also to the mucous of the sinus; they were irregular in shape, but quite smooth on their outer surface. Their appearance is white with a slight yellowish hue—a small piece, thinned on a grinding stone, and placed under the microscope shows very plainly the bone-cells, a mass of earthy substance and what I fancied masses of exagonal lozenges analogous to those of enamel nature; also the striated appearance of the dentine.

March 24th. The parts which had begun to swell in the afternoon after the operation, were quite sore and swollen; on removing the oakum, very offensive, dark colored matter escaped. The wounds were well washed and treated by carbolic injections three times a day; cold water compresses.

25th. Discharges through the nose slight; swelling smaller; very offensive odor of necrosed bone.

26th. Swelling increased; some stitches give way.

28th. Small pieces of necrosed bone are removed. Same treatment.

29th. Swelling very large, eye is almost entirely closed. Granulations, quite prominent, were cauterized with nitrate of silver. Warm fomentations.

30th. No discharge from the nose; healthy suppurations from the opening of the wound, which was rapidly closing.

April 2d. Swelling gone; granulations cauterized again.

8th. Discharged, entirely well.

TRAUMATIC TETANUS FOLLOWING HYPODERMIC INJECTIONS OF MORPHINE.

Gray gelding, seven years old, which suffered one night with spasmodic colics, and was treated by hypodermic injections of morphine and atropine in three places, on one side of the neck; these were followed by the formation of small abscesses, which being opened, healed readily. Four days after he was found with his jaws closed tight, the membrana nictitans protruding over the eye, the muscles of the body contracted; in a word presented all the symptoms of tetanus.

The treatment consisted in the administration of Bromide of Potassium every four hours in drs. 4 doses, with chloral hydrate per rectum.

He was destroyed four days after by desire of the owner.

As he had been subject to the attack of colics, post mortem examination was carefully made of the abdomen to try to find the cause of these. The great mesenteric artery was found the seat of an aneurism, the mesenteric glands being much enlarged and congested, the intestinal canal proved to be healthy.

VARIETIES AND NEWS.

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VETERINARY HONORS.

By a large vote of 73 out of 75, Mr. H. Bouley, the world known general inspector of the French Veterinary Schools, has been elected President of the Academy of Medicine of Paris. This honor, thus conferred upon the most eminent member of the veterinary profession,

reflects itself also upon this whole specialty of medicine, and is a brilliant recognition of the union of the two medicines and a proof of the appreciation of the importance of the researches of comparative medicine, so well brought forward by the new elected President.

The Veterinary Journal of February, brings us the news of the election of Professor McEachran, Principal of the Veterinary College of Montreal to a Fellowship of the Royal Veterinary College. Also of Prof. James Law of Cornell University. These are well deserved rewards, as we all know the talent of the Professors, and their indefatigable devotion to the advancement of Veterinary Science on this continent.

WAR TO SPITZ DOGS.

The war originated by the press against the Spitz dogs seems to become serious for that pretty breed. New York Aldermen are discussing the propriety to tax all the dogs; Connecticut's Legislature impose a yearly tax of five dollars on the dog, and of ten on his fair sex, while Boston asks the entire destruction of the breed. Would not a better knowledge of the symptoms of hydrophobia amongst the people be a better means to prevent many of the sad accidents which we have to record yearly?

INTOXICATION AS A MEANS OF RESTRAIN.

A partial intoxication by drenching a horse with wine slightly alcoholized is mentioned as a means of restrain, while submitted to the operation of clipping. Would it answer for minor operations?

STERILITY IN MARES.

As a means to facilitate the fecundation of sterile mares, the process of slow dilatation of the cervix by careful introduction of the index of the hand first and followed by that of the other fingers brought together and pushed in like a wedge through the os, is recommended by French Veterinarians.

WASH—FOR THE TREATMENT OF OZENA.

R. Hyposulphite of Sodae oz. i, Distilled water oz. xx, makes an excellent mixture for irrigation of the nasal fossæ in case of ozena.

PRODUCE OF MILK IN COWS.

There are \$500,000,000 invested in cows in the United States. The estimated value of butter that can be produced from a first rate cow is \$94.00, while a common cow will produce from \$30.00 to \$40.00 worth. (*Agricultural Journal, Philadelphia*).

UNITED STATES VETERINARY MEDICAL SOCIETY.

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The twenty-seventh semi-annual meeting of this society was held at Young's Hotel, Boston, Massachusetts on Tuesday the 20th of March, the President, Professor Liautard of the American Veterinary College, New York, in the chair. The following members were present:

Doctors Wood, W. Saunders, Budd, Burden, W. Bryden, Very, Hopkins, Stocker, Lyman, Cosgrove, Holcombe, J. Saunders, Colburn, Flagg, Thayer, and Robert Saunders. The minutes of the previous meeting were read and approved. The following named gentlemen were proposed for membership.

W. G. Coates, D. V. S., New York City.

C. H. Hall, D. V. S., New Bedford, Massachusetts.

C. H. Peabody, D. V. S., Waltham, “

Geo. P. Penniman, D. V. S., Worcester, “

It was agreed that all those who intended competing for the prizes offered by the society should lodge their papers with the President on or before the 15th day of July next.

Dr. Thayer proposed, and it was agreed to: that Congress be memorialized by a committee of the society for the enactment of a law or laws which shall be more stringent, in regard to the prevention of importation of diseased animals into the United States from Foreign countries. The following named gentlemen were appointed to serve at this committee: Drs. Thayer, Lyman, and Robertson. Dr. Lyman presented a section of the 13th and 14th ribs of a horse, which showed the effects of a previous fracture, and to which was firmly attached a portion of the mesentery. This horse, in October, 1875, had fallen with his cart from an embankment some 15 feet high, striking the right side upon the stump of a tree; he seemed at that time to be generally lame and sore, however after a few weeks rest he was put to work and continued his work “as well as ever,” until February 26th,

1877, on the evening of which day he died apparently from inflammation of the bowels after an illness of some 15 hours. At the post mortem examination made next morning, nothing sufficient to cause death was found, until coming to the diaphragm when it was noticed that it was perforated and that a portion of the duodenum had slipped through this being withdrawn by very gentle traction revealed about 5 feet of the bowel in a highly inflamed, almost gangrenous condition; the hole in diaphragm being next examined proved to be about one inch and a half in diameter, round with its edges thoroughly cicatrized, in fact almost cartilaginous; evidently an old affair. Through this hole was stretched a portion of the mesentery tract and crossing the body from towards its center to place of attachment to the ribs at an angle of about 45 degrees.

Dr. Wood exhibited the hock joint of a horse called "Redleg" which was shot at the age of 33 years, he had always been lame since 5 years old in this limb with the peculiarity that the lameness remained about the same; he never warming out of it in any degree upon exercising. Three or four days before he was killed he was slightly lamer than usual. Post mortem examination revealed fracture of cuboid into 3 pieces, which fracture had evidently existed but a short time; there was no known cause for this.

Also a tumour taken from the supra orbital region of the head of a 4 year old colt; this appeared to be a collection of four imperfectly formed molar teeth; there was considerable difficulty experienced in detaching it from the orbital arch, which was finally done with a large pair of forceps.

Also the bones of a 3d fore extremity amputated from about the middle of the usual metacarpus: all was perfect, even to the hoof except that there were but two small metacarpus between the two extremities one on the usual and one on the superficial limb, near some 3 years since operation and the colt seems all right.

Doctor A. A. Holcomb presented a paper upon "Special Meningitis, Azoturia, and Paraplegia, are they one and the same disease?" The doctor lamented that so great a difference of opinion so often existed amongst veterinarians and thought that it was necessary for the elevation of the profession that our knowledge of the pathology of certain diseases should be improved, so far as possible, by careful and exact research, so that there may not be left so good a chance for this difference as at present unfortunately exists. Special meningitis was undoubtedly due to a specific poison, but what was it? It is certainly not coming from any dietetic error neither is it transmissible. It is frequently traumatic, but this cause is certainly not to be confounded with its malarial origin. As far as making up a differential diagnosis between Cerebro-spinal-meningitis and simple special meningitis goes, he could

say that if deglutition is not complete the case is one having a cerebral complication in special meningitis the temperature will rise to 103 degrees F., and the pulse will be full hard and strong whilst with the cerebral form the temperature will rarely rise above 100 $\frac{3}{4}$ degrees F., and the pulse will be soft in character. Are Paraplegia or Azoturia forms of either the cerebral or special meningitis? In Azoturia, paraplegia is but a symptom: can it be that nitrogeneous urine exists and is brought about in the way set forth by Professor Williams; if this is the case why are not all horses fulfilling these special conditions affected. It cannot be proved that urea exists in great abundance and if it were so its non-elimination would simply produce uraemic poisoning. Is it not that this train of symptoms is simply due to a reduction of the quantity in the system? It certainly "is not an inflammatory disease in any sense of the word." A very interesting discussion of this subject or subjects followed, which was participated in by Doctors Bryden, Thayer, Very, the President and others. Dr. Liautard suggested that the ophthalmoscope may be found useful as an aid to differential diagnosis between Cerebral and Spinal Meningitis in some cases. Doctors Thayer and Bryden communicated interesting cases of plugging of the illiacs as causes of paraplegia.

Dr. Wood communicated the case of a horse which had been treated empirically for the reduction of splint, he was found with a great amount of œdema of both fore legs and breast and in a highly febrile state and with great excoriation in the flexures of the joints of the diseased limbs; he ordered a dose of cathartic medicine, the sores to be cleaned with a solution of acid carbol oz. 1, and glycerine oz. 6: in the course of the next twenty-four hours he was on the road to recovery, and two weeks after the hair had started fairly over where the abrasions had been; ten days after this the Doctor received an urgent call to see the same horse. This time he was found œdematous from head to foot; the hair stood up and whenever touched it would come off in large mat-like pieces, leaving the skin as bare as one's hand. Ordered chloral hydrate oz. ss, warm water gals. 2; horse to be dressed all over with the wash and covered tightly. The first application took off four-fifths of the hair which was on the whole body; but the washing stopped and now the horse was apparently doing well.

The society then ordered that two hundred more copies of the Constitution and By-laws of the Association be printed with an appendix, containing the names of all past and present members, after which the meeting adjourned.

CHAS. P. LYMAN, *Cor. Sec'y.*

CORRESPONDENCE.

LAMENESS IN HORSES.

Lameness in horses is a subject that has received much attention, and many theories have been advanced, and opinions expressed in the different method of protecting their hoofs so as to prevent diseases of the feet and limbs. Everything that can add to the animal's value, comfort and usefulness being of much importance, it may be well to bear in mind that the horseshoer, however much to blame in causing lameness in many cases, is not the only one on whom responsibility rests. The horses' condition in domestication is entirely different from their natural condition, and the variety of circumstances under which they are reared exerts important influences in their development—modification. Their organization may be directed either towards perfection or the reverse, accordingly as their wants are understood and attended to; breeders and owners have therefore duties to perform, both in rearing the young and when older in managing and determining the amount and character of the work for which they are adapted and capable of performing, which if neglected or misunderstood will be productive of mischief and loss for which they are alone responsible. It is important to remember that mere maintenance of parts in the young is not all that is necessary, for should growth be arrested or interfered with for a length of time during the growing period of their lives (colthord) in any part of their bodies, the loss will seldom if ever be regained. There is no part of their system more important than the hoof and hardy symmetrical development of it can only be attained when it is subjected to *tear and wear*; this is compensated for by a growth that nothing can so stimulate to meet the demand for, equal to exercise on suitable ground. The difference between the finger nails of the hard-working farmer and those of the clerk is a familiar illustration of the law that regulates such cases. The restraint and confinement to which young horses are subjected especially during winter in Northern Countries is a fruitful source of mischief to the locomotory and sometimes also to the digestive system, for we have among horses as among men many examples of diseases such as plethora, dyspepsia, &c., resulting in part at least, from idleness. Muscular activity must be kept up in order to exert its proper influence on the circulation and through it on digestion and excretion, respiration, heat and general nutrition. And vigorous robust maturity can only, with certainty be attained when from both the animal is placed as much as possible in circumstances when every organ and every faculty can be regularly exercised.

The climate and character of a country give habit and physical forms which often alter their constitutions and lead to differences of organization; the influence thus exerted on the limbs can be readily observed by comparing those of horses reared on low flat districts with those reared among the hills; the muscles are different and so are the form and quality of the hoofs, in both cases they may be sound and healthy and each one the best adapted for the locality in which they were produced, but when put to work, especially if on the streets of our cities, the hoof of one will in all probability be found softer and not so readily adapted to the changed circumstances. This also suggests the importance of knowing the kind of pasturing most suitable for different qualities of hoofs, and the effect which wet or dry seasons have on the same.

A knowledge of the circumstances and physical conditions necessary to insure vigorous development and to maintain the limbs in health is of the highest importance not only to the owners of horses, but to veterinary surgeons and horse shoers also, for many of the diseases met with arise either from neglect or from the requirements of the animal being misunderstood and their prevention and even recovery can often be satisfactorily accomplished by an intelligent change in their management and without the aid of other remedies.

Boston, December, 1876.

W. BRYDEN, V. S.

COMMUNICATIONS RECEIVED.

AN UNUSUAL ACCIDENT.

The subject of this accident was a bay colt 5 years old. I saw him taking his exercise in perfect health and condition, about 2½ P. M., March 1st. About 3½ P. M., while on the street still at exercise, a wheel belonging to a grocery wagon ran on the *front* of the hoof of the near, left hind foot, fixing it firmly to the ground. The animal struggled violently to free himself, and succeeded by *leaving the hoof behind* and pulling out every tissue, bone, matrix, from the horn as nicely as a man would pull off a boot.

This accident has an interest in a *legal* point of view. I was once a witness in a horse law case, where the animal had a foot injured by the crush or weight of a truck wheel; it was contended by the defense, and that side won the case, that from the shape (angular or sloping sides) of the hoof it would be impossible for a wheel to *remain on* the hoof, but that it would slide off, or push the foot aside.

This case proves the contrary; of course I had the animal shot. The hoof I have, and shall send it to the American Veterinary College Museum.

ALFRED LARGE, M. D., M. R. C. V. S. L.

AMERICAN VETERINARY REVIEW,

MAY, 1877.

ORIGINAL ARTICLES.

OSTEO POROSIS,

BY JOHN MYERS, V. S., OF CINCINNATI, OHIO.

Osteo Porosis is the term of a disease which experience has proven to exist in solipeds of both sexes, and fall the victim thereof at their best period of life (from third to fifteenth year). It is characterized by a partial enlargement "Hypertrophy" of either upper or lower jaw, very often both. It is extensively considered that this abnormal condition of the head is a local affection and treated as such, or regarded as incurable and left to nature.

Etiology. There seems to be a difference of opinion as to its origin; however, climate and locality undoubtedly have a remarkable influence. The West and South-west of North America, and as I perceive, Canada are the districts especially favorable for its development, whilst in the East, it is but very little known. The damp and ill-ventilated stables are the principal generators of this disease. But very few cases have come under my observation, from the country, and with the exception of the summer following the Epizootic, only in the winter; for this reason I believe I may attribute the production of this disease to the *moist and changeable atmosphere*, in which the functions of the skin are manifold detrimentally affected; and moreover, when tracing the history of the case, it is generally found that the animal was subjected to some recent unaccustomed exertion during which

he freely perspired. Notwithstanding that such communications are sometimes unreliable, still I must corroborate this mode of genesis, as it at one time occurred to myself in the same manner, and I have positive reasons to accept this as a foundation, for such events often give an impulse to the production of the disease. Horses of nobler origin are seemingly less attacked by this malady; experience has not enlightened me sufficiently however, to determine whether this horse has a greater power of resistance, or that it is owing to the better hygienic condition he is under, since on account of superior qualities, he is possessed by wealthy individuals who can provide for his good attendance. Corn, which is the principal nourishment here, is considered by some as the source of this derangement, though horses performing agricultural labor, remain, with but few exceptions, exempt therefrom, notwithstanding they are fed upon corn during the whole year but the summer time, when they have the benefit of grass as a substitute for hay, which cannot be too highly commended towards reviving the organism. Horses employed and stabled in the city, on the contrary are confined principally to oats and hay, and it is precisely from this mode of stable management that this disease emerges most frequently. It is no seldom occurrence that this slave of the community receives nothing but oats and hay in superabundance for years, partially due to convenience, (chop feed requiring but little labor) and partly on account of the unfounded prejudice some have to corn, whereupon imbecility of digestion supervenes.

Symptomatology. The precursory signs vary somewhat. The formerly faultless ambition gradually disappears, the animal lies frequently, appetite remittant and altered. Some preferring corn and hay, others chop feed; desire for water diminished; fœces in dry, small tough glistening balls, urine muddy, smaller in quantity, evacuated in some cases with difficulty, and flanks drawn up. The visible mucous membranes of a pale hue, occasionally icteric, respiration and circulation as yet normal; accompanying these appearances, lameness in either limb or joint, which present different characteristics. It may now be related to the shoulder joint, at another time to the hip joint with cold hoofs and faint circulation in the foot, while the healthy limb possesses natural warmth. One third of the patients have hydrarthrosis; however in some cases it may be only cellular hypertrophy with increased temperature and sensibility. A warm doughy painful swelling which involves one or both metatarsal regions

is manifested in one fourth the cases, whilst in others the hoof is so tender, that the horse will not put it to the ground; it is only the toe he attempts to put to the floor; in this case examination of the foot reveals a well marked elevation of temperature. A distinct impulse of the plantar artery and a very painful sensation on pressure at the point of the frog. Stiffness and debility of the lumbar region often exists to such a degree, that when they lie down they are unable to rise without assistance.

If the practitioner's attention is drawn to any one or other of these symptoms, he will not neglect to make an accurate inspection of the head, which will, if not at all times, very often present a thickened condition of one or both jaws, principally along the alveolar cavities. A very prominent spot is observed in the immediate limits of the anastomosis of the dorsalis nasi and angularis veins which dimensions depend on the duration of the disease; during the progress of this hypertrophy the skin is rendered tense over it, but not adherent. One of the fatal symptoms in the presentation of this disease is the tendency for the toe to point upward and the metacarpo phalangeal articulation towards the floor, even sometimes in direct contact with the floor. The coronary band is painful and swollen, there is an extravasation of foamy blood in the foot and fetlock, or at the junction of the hair and horn, which indicates a rupture of the flexor pedis perforans near its insertion, and consequently permitting preternatural mobility of the foot; if this bloody exudation is wanting, it will make its appearance sooner or later, as well as the impairment of all the other functions necessary to animation.

Autopsy. If the hypertropic deformity of the bones of the face, or the preternatural mobility of one or the other foot is wanting, it is an impossibility, by simple inspection of the cadaver to decide what disease the animal was laboring under; even from the appearance of the pathological anatomy of the visceral organs we cannot arrive at any definite conclusion, thus it is necessary to subject the osseous system to an inspection as Prof. Varnell did; *See Veterinarian*, 1860, also *William's Veterinary Surgery*, p. 171. For microscopic wood cuts see *Harley and Brown*, p. 197. My observations with but the naked eye correspond in various points with those alluded to by Prof. Varnell. I also noticed the erosions and ulcerations of the articular cartilage, principally in the phalangeal articulations. By superficial appearance the thickened maxillaries exhibit a distention of the

acuncæ infiltrated with a bloody serum which when the integument is removed (the periosteum is readily detached at some places and at others firmly adherent) percolates and evaporates, causing the same bone to dry up within two or three months, so that it loses two thirds of its former weight without reducing its volume any. A diseased bone of this kind can be cut without any difficulty similar to cartilage, is elastic and tender in wet condition, when dried, fragile and prone to fracture. The muscles are relaxed, pale and intersected with considerable amount of adipous tissue. Lungs and heart are not markedly affected neither the spleen and intestines. There are ecchymosed patches in the mesentery. The liver which at the onset is hyperæmic (found it in one case atrophied, of an ash gray color and tough, the hepatic vessels and ducts shrunken) becomes frail and even partly decayed. The kidneys at the beginning are hyperæmic, later anæmic and relaxed, the pelvis often contained purulent mucous; it has also occurred that partial decomposition had taken place. The bladder generally contains an opaque viciid urine, mucous lining slackened and lead colored. I usually found that where there was a rupture of flexor tendons and ligaments, fragments of the coffin and navicular bones were attached; the excavations made by the disunited fragments of the above named bones, bore traces of a vehement congestion which must have taken place.

In consequence of the unlimited duration of the disease which governs the different pathological lesions, I am unable to do justice in describing the intercurrent complications. What appeared remarkable to me, was the more solid consistency of the blood which may probably be attributed to the diminished desire for water that the animal had. Analysis of the same might possibly be of diagnostic value.

The course of this disease is of a chronic nature and may linger from 2 to 3 months or more, lest hectic fever intervenes which brings on a speedy termination, or that lumbago or rupture of the flexor tendons demands destruction. The convalescence is seldom complete, the structural changes of the maxillary bones are permanent and in cases where they are not involved the disease is merely characterized by lameness of the extremities and impaired or changeable appetite; a re-occurrence may be anticipated.

At the onset, the diagnosis is very obscure (as is the case in a number of other diseases), until the force of the disease is exploded by a regular rheumatic attack. The variety of forms in which this enemy

appears, very easily gives rise to errors which may do the practitioners more harm than if the case had never rallied, referring to the complexity of the symptoms. The prognosis necessarily demands caution inasmuch that the character of the disease is more mild in some years than in others, also that those attacked in the beginning or middle of the winter do not have the same prospect of recovery, as those which fall the victim thereof towards spring. Lumbago has with but few exceptions—fatal consequences. Shoulder and hip lameness of the same type are very often restored. I may here mention that not a very few consider this ailment irrecoverable.

Treatment. Change of food and locality; when circumstances are admissible I commend to have the animal run at large, where they have the opportunity to nibble at earth and eat grass even if it has no nutrient properties; in addition to the young tender grass, the warm spring atmosphere has the power of exerting such curative influences, that those animals under these hygienic advantages with but few exceptions become serviceable. Spine, hip, or shoulder lameness are very readily dispersed, by applications of irritating liniments and salves, but very apt to make their appearance in other articulations; those having spine affection must be supported by slings; if the location of pain is in the coffin joint, I have a blister applied around the foot from the coronary band to metacarpo phalangeal articulation. When rupture of the flexor tendons has taken place the animal is destroyed. An application of blistering salve, with iodide of potass, or biniodide of mercury salve has proved beneficial in checking the growth or effecting a partial reduction of the maxillary bone.

Internally I administer for anorexia and partial constipation a purgative of pulv. aloes 10 to 11 drs., and calomel 2 drs., or pulv. aloes 10 drs., podophylin 30 grs. If the evacuation of the bowels after the purge has assumed a normal consistency, I follow up with the compound of P. Rad gentian, P. aloes P. sem. colchic, and resin pini; the rheumatic type of the lameness and impaired functions of the kidneys persuades me to select these ingredients. I must however acknowledge that I have not as yet obtained any satisfactory results; I ignore all specific remedies which would tend to arrest the pathological process going on in the bones. Iodide of potass so highly recommended by some, is, on account of the anorexia and impaired nutrition it produces, inadmissible. Owing to its numerous complications this ailment will never admit to a mode of cure which would answer in all its phases.

P. S.— Since writing the above article on Osteo Porosis, made a post mortem examination on a half thorough-bred mare, which was prostrate upon good litter for almost three months. The owner on account of pietistical regards was opposed to having her killed. To avoid rupture of the flexor tendons, I warned him not to urge her to get up; however he could not resist the temptation, and she fractured the right os calcis. Through the agency of plaster paris, I obtained perfect union in four weeks; then another attempt was made to put her in the slings; finding this useless, was obliged to let her resume the recumbent posture. The next morning found the pit of the heels of the left hind and right fore feet swollen and painful; particularly when extension was brought into play. By the application of Schmucker's fomentation the inflammation subsided. A complete rupture of flexor tendons had not taken place. Decubitus on both sides of the thorax, hip, etc., gave rise to such violent sympathetic fever, followed by emaciation and collapse, that life was brought to a termination.

Disarticulated the left hind foot at the metatarso phalangeal articulation, which presented a violet blue hue at the articular cartilage. Posterior surface of the os coronæ was very much roughened from a calcification into which the ligaments and tendons were intimately interwoven. The external condyle of the os suffraginis was ulcerated, the articular cartilage of the approximate glenoid cavity intact but of congestive appearance and very friable. The upper two-thirds of the posterior surface was covered with an osseous material one-fourth of an inch thick, which stood in relation with the above named calcification. The distal interphalangeal articulation was but slightly affected. The external surface of the tendinous sheath and remaining soft tissues presented an indigo blue color down to its extreme end, where it was found detached with a fragment of the coffin bone annexed. That the usual suppuration and consequent sloughing of the hoof did not occur, is probably due to the want of reaction, dependent upon lack of vitality.

VETERINARY EDUCATION.

BY D. McEACHRAN, F. R. C. V. S., V. S., EDINBURGH,

PRINCIPAL OF THE MONTREAL VETERINARY COLLEGE.

[Continued from Page 17.]



Let an European visitor pass through the rich agricultural townships of either the United States or Canada—let him note the vast numbers of domestic animals which go to form our herds which represent so much of our national wealth, and which are just objects of our national pride; let him examine our herd books and stud books, inquire into the great expense and trouble we go to in importing the best blood which Europe can sell us; he will be astonished to find how little we are behind even old England herself in the quality of our animals.

The lavish expenditure on buildings for housing our animals, the comfort and care we bestow on them will surprise him no less; but what must be his astonishment when he discovers that these vast herds, this enormous wealth, is for the most part left to chance when attacked by disease, or worse still, to the mercy of uneducated charlatans, yet such is the case.

It is a deplorable fact that so far, in the United States at least, even the vast amount of government property in the shape of cavalry and artillery horses, are entrusted to the care of uneducated practitioners, who hold no commissions, and receive less pay than many ordinary laborers. Is this as it should be? Surely not. Why should those in charge of our valuable herd be a whit less thoroughly educated, or occupy a less important position than the same class in England, France, or Germany?

We have now reached an era in the history of Veterinary Science in America, which demands that each member of the profession will do his duty to himself, his country, and his profession, by insisting henceforth that this noble science, valuable as noble, for by its proper utilization, millions of dollars which under present circumstances are lost annually, may be saved—must and will be wrenched out of the hands of the impostor, and be practiced only by those qualified by education of a standard, arranged and acknowledged by some recognized authority.

The question what that standard should be is the great stumbling block in the way, it is in fact the rock on which our good ship is most likely to be wrecked, unless we can convince the heads of the teaching colleges and those associated with them, that there is truth in our professional motto, *Vis Unita Fortior*. So long as mercenary motives, jealousy, or self-aggrandizement, instead of the elevation of the science, actuates any one of them to frustrate concerted action, no real lasting progress can be made. We have seen the length of study and subjects embraced in the curriculae of the schools of Great Britain, and the continental countries; why should we accept an inferior position to either as we certainly do by adopting an inferior standard of education?

To every intelligent mind who knows anything about the course of study embraced in a medical curriculum, it must appear almost ridiculous to profess that more than a rudimentary knowledge of each subject can be obtained by cramming the studies into any period of time short of three full winter sessions, and I am positive no reader who has tried it, but will agree with me that justice cannot be done to any subject so crammed. What then must be the condition of those, who, with almost no education, unaccustomed to study and past the pliant age of youth, are allowed to graduate after attending lectures for eight or ten months, that is four or five months in each of two successive winters?

I do not altogether agree with a recent writer in "The Spirit of the Times," in the curriculum therein propounded—to say the least of it, it is not practicable; whoever would spend the time and money to master all the scholastic attainments suggested, would expect to be qualified for a profession offering a more advanced field for scientific renown, or else a greater certainty of lucrative emoluments, than our struggling, neglected, but noble profession as yet offers; no, our progress to be sure must be gradual, and it must be in accordance with, and in proportion to the necessity experienced by the public for our services, otherways it will neither be practical nor lasting. The writer above referred to suggests for the United States a grand central veterinary institute with each professor a specialist in his subject, the institute or university to be richly endowed by state grants, &c., the idea is a good one for that country, but his ideas of detail are extravagant and impracticable, and his sweeping denunciation of all the powers that be, except the creations of his own fertile imagination, are far from calculated to further the ends he has so much at heart.

For our Dominion of Canada such an institute could never exist, owing to our peculiar geographical positions, and other potent reasons, and as the former, (though I repeat much to be desired) is not in the immediate future. What remains to be done, is to endeavor to raise the now existing colleges to a proper standard.

1st. By instituting on each a matriculation examination embracing, Writing, Arithmetic, Euclid, Latin and English Grammar.

2d. By extending the curriculum over at least *three winter sessions of six months each*, and insist on the summer months being spent in practice, or if not, a fourth session be required. In my opinion great injury is done to the profession by practical application being greatly neglected by the most studious pupils, and very often those best posted in book knowledge, are least adept in the practical application of it.

I maintain that even if we suppose a student capable of reading up fairly the theoretical studies within the same consecutive twelve or fourteen months, it is absurd to imagine that he can have even a crude idea of practice—he cannot possibly spend his time in lecture-room, dissecting-room, study, and be attending to practice at the same time, and we all well know that not one in fifty have the opportunity during the vacation of the summer months of seeing practice, except a neighbor's cow or horse, which he is allowed to attend as a matter of favor.

Most students are so situated that they have to give their assistance during the summer on the farm or otherways to help them to pay for winter's expenditure, hence, some steps ought to be taken by the colleges to insure a practical as well as a theoretical knowledge. This matter cannot be too forcibly impressed on those young men who intend entering the profession, but more particularly on those who are responsible for arranging the course of study at our schools. I am aware that the practical education given at certain schools is paraded in excuse for an extremely short course, but, surely no man of common sense will believe that even if a student were to see all the practice of any three veterinary colleges during four months of winter, with nothing else to do, that he would see one tenth of the practice necessary to properly prepare him for the discharge of his professional duties with credit to himself or satisfaction to those who employ him, and how much can he see when he has three or four lectures to attend every day besides reading and dissecting. Is the want of practice not

too often the cause of failure? Have we not often seen our best book and lecture room knowledge students, make most unpardonable practical mistakes, when they have assumed practice for themselves? On these grounds alone should we not urge an increased length of pupilage?

It is much to be desired that those who wish to become members of the profession should devote their whole time to it, and not as is too often the case study merely during the session and immediately it is over undertake other duties which have no relation to the science.

I need not refer to the early history of the profession in America. Professor Liautard in the first issue of the *Review* having laid that ably before our readers and to that paper I refer those who wish to know the ups and downs of veterinary education in the United States. What I have chiefly to do with in this paper is the teaching of the profession as it is at the present time in the United States and Canada.

At New York we have the American Veterinary College, under the able superintendence of Professor Alexander Liautard, M. D. V. S., a gentleman who from his enthusiasm and extensive medical knowledge and who having the best interests of the profession at heart, is eminently fitted to be a teacher of the science. At this school the following course of study is given—see annual announcement 1876:

“The curriculum provides for a thorough theoretical and practical medical education; the fundamental medical sciences Anatomy, Physiology, and Chemistry; together with theory and practice of Veterinary Medicine, Surgery, Obstetrics, Materia Medica and Therapeutics are lectured upon during a regular winter session of *four and a half to five months*.” At the end of the winter session a spring course has been opened embracing different branches with lectures on Comparative Anatomy, Jurisprudence, Sanitary Medicine, External Forms of the horse and Pharmacy.

The requirements for graduation are, twenty-one years of age, a certificate of three years study of medicine, *attendance on two full courses of medical lectures, the last being in this college*. A good English education, proper testimonials of character, and a satisfactory written oral and practical examination, *by the professor of each department of instruction*.

I am happy to say that the principal of this college is fully alive to the fact that the session is too short, and also that three sessions

should be required. It is sincerely to be hoped that the faculty will support him in making the much to be desired reforms. If I understand the meaning of "the attendance on two full courses of medical lectures, the last being in this college" correctly, all that is necessary is the attendance for four and a half months, that is, any medical student who has attended lectures for one session, can after four months and a half or five, present himself for examination, and if he has read up enough, obtain the diploma certifying him qualified to practice. How can he be? What can he know of practice, unless he has been following quackery before? I trust not many follow this system—even suppose they attend the two sessions at the veterinary college, is it possible that a science so abstruse, so comprehensive as to embrace almost all sciences can be mastered in nine or ten months? for as I before stated very few either practice or study during summer.

Again the "oral and practical examination being *by the professors of each department of instruction*" is certainly not to be recommended, nor will the public accept its results as being as reliable as if they were examined by an outside and impartial board of examiners, unconnected with the college. It is to be regretted that a college, capable as it is, with an eminent teacher at its head, a valuable museum, excellent infirmary accommodation, and located in such a city as New York, should not adopt a curriculum in keeping with the progress of the profession and their great opportunities.

At Cornell University we find Veterinary Science occupying a position creditable alike to that university and to Professor James Law, F. R. C. V. S., who ably fills the chair of Veterinary Science. Here we find the regular course embraces: "First, five lectures per week extending over the academic year. Secondly, laboratory work on bones, skeletons, elastic models, pathological preparation and parasites. Thirdly, clinical instruction on the cases occurring in practice. For the degree of Bachelor of Veterinary Science a four years course is provided for, the last two years of which are entirely devoted to special veterinary studies, and embrace a most complete curriculum, Anatomy, Physiology, Histology, Zootechny, Hygiene, Botany, Toxicology, Pharmacy and Therapeutics, Veterinary Medicine and Surgery, Obstetrics, Surgical Pathology and Anatomy, Examination for soundness, Principles of shoeing, Physiological and Pathological.

It will thus be seen that the course at Cornell is quite up to the requirements in the theoretical branches, but it is questionable if the

practical advantages are equal to those to be found in a large city. Professor Law's educational work is not confined to his professional duties; as an author and editor he has done much to forward the profession in his adopted country.

At Illinois Industrial University, Champaign, we find the chair of veterinary medicine ably filled by Prof. W. F. Prentice, M. R. C. V. S., who has raised his department to one of importance and whose students are well grounded in the science. I am not aware that any degree is granted by the University in Veterinary Medicine.

Lectures on Veterinary Medicine are given in most of the Agricultural Colleges, especially at Amherst, Virginia, Ohio, Maryland, Pennsylvania, Dartmouth, N. H., Vermont and Iowa. So far as I can learn, none of these chairs are filled by qualified members of the profession, unless the gentleman who fills that position in the last named Agricultural College can claim to be, he having attended for a short time, lectures at New York, during the winter of 1875 and '76, on Anatomy, Practice and Surgery *only*, and who in his own words, "wanting to take advantage of his vacation from the middle of December 'till the middle of March next, in attending some Veterinary College that affords good facilities"—being refused a short cut into the profession at the Montreal College, gained easy access at Toronto, and his name flourishes among the recent graduates of that school. As the middle of December would be the 15th supposing he entered then, he would have one week before the Christmas Holidays. The session reopening about the middle of January, he would have nearly ten weeks more to the end of March, nearly eleven weeks altogether, in which to reach the high standard of perfection claimed by that institution, in Chemistry, Materia Medica, Physiology, Horse Pathology, Cattle Pathology, Entozoa, Principles of Shoeing, Breeding of Domestic Animals, Dissecting, Extensive Practice, &c. His success as a student, either must be credited to unprecedented ability on his part or else to a lamentable disregard for the interests of the profession on the part of the Ontario school. The latter I fear is the most likely, and it is much to be regretted, especially in the case of a person occupying the position of a teacher of science.

In the next number I will refer to the profession as taught in Canada, and propose a scheme for placing the profession in America (United States and Canada) in a position proportionate to its importance and requirements of both Countries.

ENTEROTOMY,

BY JOHN MYERS, JR., D. V. S., OF CINCINNATI, OHIO.

The relative frequent occurrence of flatulency of the bowels as an independent affection, or as a sequence, its rapid progress and curability under appropriate surgical treatment, is a matter of extreme importance. It is not my zeal to impart the contents of this inadequate manuscript, as any recent discovery in veterinary literature; on the contrary the performance of enterotomy dates as far back as the fourth and fifth century by Vegetius, though never professionally practiced or reported until the latter quarter of the eighteenth century by Bourgelat and Chabert, later by Barrier and Harouard, and still later by Hayne, Brogniez, Herring, Delwart, Lafosse, Charlier and numerous other practitioners whose citations strongly convince the reader of its efficacy and innocence. Others again, denounce the operation, owing to the complications that have presented themselves, such as Peritonitis, abscesses, internal hemorrhage by puncturing the cæcal artery, or death ensuing without it (the operation) producing any satisfactory change; in these latter instances, it must either have been performed on improper cases, or too long deferred, rendering it impossible for the operation to attain the merits it really deserves.

Enterotomy has been performed by puncturing various portions of the intestinal tract; in the majority of instances the colon and base of cæcum in the right flank, "owing to the predominant gas collections there" is the preferred seat of puncture, however, punctures have been made in the left as well as inferior surface of the abdomen and even per rectum, without producing any detrimental consequences. Some very hazardous tools have been employed in performing this operation, and still merits are claimed for its execution, but, the most appropriate and approved instrument is a trocar; which has been modified in quite a number of ways, none practically considered of any appreciable advantage. Brogniez in 1843, constructed a lancet jointed trocar that cannot be withdrawn from the canula to which it is fastened with screws, possessing a bivalve near its end, which, before introducing is concealed within a receptacle, and after it is introduced the valves are thrown

open by manipulating a screw at the flange allowing the gas to escape through the receptacle and out of the canula; the object of the bivalve is to support the intestinal walls so that they cannot recede whilst the gas is escaping, which would otherwise be apt to displace the canula. As judicious as this construction seems to be, it has certain disadvantages, the point being retained within the bowel, and by virtue of its (the bowel) collapsing the opposite wall is in danger of being injured. The small openings for the valves are apt to become obstructed by particles of food which prevent their closure, consequently rendering it exceedingly difficult to remove the instrument without causing more or less damages. The inventor of this instrument ascribed to it an electric property generated by the contact of the different metals it is made of, with the acid contents of the bowels, which electric force, he in 1849 declared to be of minor importance. Hayne's trocar is from 8 to 10 inches long, and from $1\frac{1}{2}$ to 2 lines thick; in my estimation a most appropriate instrument.

Gaube reported in 1849 a case upon which he operated with bistoury and quill. The introduction of therapeutics through the canula has also been advocated. Delwart in 1846 reported an instance where he introduced oz. xii. tincture of aloes into the bowel through the canula with good results "Cathartic." Brogniez is another supporter of this practice, but more recent practitioners do not regard it as essential. Lafosse during his experiments upon different cases retained the instrument from 6 to 30 hours, which proved unnecessary for all the movable gas will find its exit from 3 to 8 minutes, and its retention by the persistent irritation is very liable to produce inflammation, adhesions, and abscesses.

Schaak in 1839 reports a case where a scrotal abscess supervened, which complication is by no means very uncommon. Cartier in 1849 cites a case where it was an impossibility to close the valves of the trocar necessitating a forcible removal which produced an abscess of three weeks duration. Numerous other cases of abscesses have been reported principally from French sources with comparative good results.

I abstracted these chronicled items chiefly from the surgical work (*Operations lehre*) edited by the eminent author and pioneer of veterinary science, Prof. Ed. V. Hering whose technical rules I took as a guide in performing the operation in general, deviating from them only in minor matters. Moreover as far as I could

ascertain by the perusal of my limited library all the advocates concur in the manner of its performance, which I presume you all know. In giving a brief sketch of the procedure as I usually follow, I am obliged to ask your forbearance, for I have nothing to improve it, but am doing it to induce my younger colleagues to lay hand at work and make use of a therapeutic manual which has been too long underrated, perhaps discarded by one and dreaded by another.

The point of selection is indicated by the most exaggerated tympanitic resonance on percussion between the external angle of the ilium, posterior border of last rib, external margin of the transverse processes of the lumbar vertebra and about 4 inches beneath the latter, on the right side, which is preferable, lest I observe contraindications when I attack the left side or inferior walls. If the escape of gas does not prove satisfactory, I do not hesitate to tap both flanks, and if necessary would repeat the puncture at some other spot. The preparatory measures are simply to remove the hair from the chosen spot, oil the canula and be supplied with a sound to remove obstructions, which might by the current of egressing gas be forced into the orifice of the canula. Some authors advise a small incision to be made into the skin after the removal of the hair which would facilitate the passage of the trocar, though in my estimation it is scarcely necessary if a delicate instrument is used with a calibre measuring 1-16 of an inch and 6-8 inch long. The trocar is taken into the right hand with the handle well braced in its palmar surface, the index finger extended over the canula to mark the depth I choose to grant its insertion, which is usually about 4 inches, then I thrust the instrument forcibly into the intestine in a *slightly* oblique direction from above downward, so that when the bowel recedes the orifice of the canula is not obstructed by the relaxed intestinal walls, then I remove the stylet "always retaining the left thumb and fore finger on the flange of the canula to secure its position," and the gas will readily escape provided the liquid or solid material within the bowel does not obstruct the canula when the use of the sound would be called upon to remove the barrier and the escape of superfluous gas will continue until the bowel becomes entirely evacuated, then I will draw the canula and depend upon nature for cicatrization. It has been suggested to apply a piece of adhesive plaster over the wound, which is very proper if an incision is made. In some cases, profuse hemorrhage may occur after the removal of the canula no doubt due to laceration of some arteriole in the skin or

abdominal walls, which seem to be engorged with blood in consequence of stagnation, brought on by the pressure of gas, and is of minor importance.

The evidence of relief, if not entire convalescence, is markedly manifested, the previous restlessness is transformed to a state of quietude, collapse of the abdominal walls is very obvious, the previous anxious expression assumes a grateful countenance, the injected cyanotic visible mucous membranes become florid, the laborious respiration calm, the reoxygenation of blood returns followed by the strengthened condition of the heart, reproducing an equalization of temperature, auscultation reveals the return of borborygmus, also does the bladder resume the power to evacuate its contents, and if coma has supervened "the result of pressure upon the vascular system," with the cessation of all other perilous symptoms it certainly must subside.

Enterotomy may also be employed as a palliative measure with benefit. There are diseased conditions of the abdomen such as Peritonitis, Constipation, Emboli, Thrombi, Strangulated Hernia, Calculi, etc., where flatulency is present as a secondary effect and is merely symptomatic, nevertheless often exerts sufficient destructive influences over the vital organism to produce death, before the morbid condition of the bowels can be eradicated, hence the use of the trocar is indicated, thereby relieving pain and enabling the original disease to ameliorate or run its course, also would it insure more time for the action of medicines and allow the circulatory system to proceed by virtue of the relieved tension, causing dilatation of the blood vessels and return of nervous force promoting increased peristaltic action of the bowels which enables the gasses and foecal matter to find an exit; all of which are valuable factors in the restoration of life ascribable to the operation.

On inspecting a case of flatulent colic while in a recumbent posture, it would seem to be the most proper moment to perform the operation, by reason of the increased distention of the visible side, which is a mistake; there are great dangers connected with this method, should the patient happen to struggle or make an attempt to rise, the sharp point of the stylet or retained canula is apt to injure the intestines, moreover the trocar is liable to break at the handle or somewhere through its metallic course, which would be an unpleasant occurrence to both practitioner and patient. I have had frequent occasions to put this method of treatment into practice from the fact that the consummation

of fermenting food, owing to its moderate price and convenience of administering is very great in this district. However numerous the cases that came under my observation were, I am unable to furnish reliable statistics to convey an idea of the convalescent percentage, but feel confident to say that $\frac{2}{3}$ of the patients that I operated upon recovered, not disregarding the incurable complications which may have existed. Also will I admit that amongst those that recovered, there might have been a small percentage, that would have rallied without surgical interference nevertheless, feel gratified at the result achieved by subsiding the unnecessary suffering the animal otherwise would have experienced, "which result is sufficient cause to justify its practice considering its innocence.

EDITORIALS.



CATTLE PLAGUE.

Thanks to the measures taken by the different European governments, where the rinderpest had made its appearance; we are glad to read in our foreign papers that all fears of a large spreading of the disease are fast subsiding. Still the *Journal d'Agriculture* of March 31st, published in Paris, informs us that few new cases have made their appearance in England, one at Hull on the 22d, and two others in London. At Hull eight animals were destroyed, in London forty-one.

However we hear that in Prussia, all measures have been suspended the disease being considered at an end. France still keeps a sharp lookout for the execution of her sanitary orders. Switzerland amongst European powers is the only one which has not taken extra measures against the importation of the disease: with full faith in the execution of the sanitary measures of Prussia, the Swiss government has not judged necessary to prevent the importation of cattle on its territory. The recent order issued by our Secretary of Treasury will probably have to be suspended as long as such good news come to us from Europe, at least as far as the rinderpest is concerned, but how about Pleuro Pneumonia, Variola, Venereal disease of Solipeds, &c.

AMPUTATIONS IN ANIMALS.

Amputations of extremities, which occupy such a large place in human surgery, are far from having the same importance in the therapeutic of animals. In man many diseased conditions may render this operation, *one of necessity*, such as diseases of bones, commmitive fractures, complications, dislocations, articular diseases, gangrene, aneurism, &c. It is also very essential in removing some malformations or may be useful in preventing the absorption of virulent principles as in cases of bites from rabid or venomous animals. These circumstances of course may also exist in animals, but the fact of their inability to perform work after recovery, and the ever constant question of expenses &c., have always been of a greater weight in the scale against the practicability of the operation, and for these reasons is it, only on few occasions and in animals of great value that practitioners can decide owners to run the risks of a doubtful result. Still it can be recommended in cases where a valuable animal can be kept for breeding purposes, when a pregnant female is to be preserved till her time of delivery; in case of a superior milking cow or even of beast intended to be fatten for the butcher. Though these peculiar conditions must have been met in general practice, the number of successful amputations placed on record in veterinary literature is very limited. Another case can be added to the list, which we extract from the "Veterinary Journal," and which will be found in full in this number of the *Review*.

OSTEO-POROSIS.

Some time ago Mr. J. Myers, Sr., of Cincinnati, Ohio, sent us at our request a translation of a long article on that subject, which he had written in German and which was published in Hering's Repertorium. Through the kindness of Mr. M. who has consented to it, we are able to present our readers with a translation of the original communication. As it is a disease which prevails to some extent in some parts of our continent, and as in many instances it assumes a very insidious form, the contents of the article will prove interesting, especially coming from one who has had much experience with the disease and its treatment.

As a complement to its writings, we may say that Mr. M. informs us that besides the therapeutic to which his patients have been submitted, "he has practiced lately transfusion of blood from lambs and calves into two subjects, in which the appetite and general secretions (urinary principally) responded in a quite favorable manner, though the lameness and enlargement of the maxillary bone did not seem to be benefited."

ABSTRACTS FROM FOREIGN JOURNALS.

CONTINUED IRRIGATIONS IN THE TREATMENT OF SURGICAL DISEASES.

Under this title Mr. Trasbot the learned clinical professor of Alfort, publishes a series of observations, where in combination with surgical manipulations, the constant current of cool water was found much beneficial. Employed in animals who have been operated for deep puncturating wound of the foot, for cartilaginous quittor, for suppurative corns, in those where a too severe cauterization by the actual cautery had been produced, in diseases of the withers and of the poll. Mr. Trasbot gives the following conclusions: "generally the continued irrigation is indicated in all surgical affections likely to be complicated or already so, with necrosis of a tissue of little vitality, fibrous or fibro cartilaginous. Applied immediately in the wounds of the plantar region, it prevents mortification of tendon and keeps the wound in good condition for repair. When necrosis has begun, it will stop it and bring the part back to a condition of perfect cicatrization. In the most severe cases of sesamoid synovitis, of caries, of open joint, it becomes almost the indispensable and certainly the most efficacious complement of the operation. Whenever, after suppurative corn, pricks by the blacksmith, contusion of the foot, the flexor tendons or the cartilage of the third phalanx have been exposed and more or less macerated by the suppuration, the irrigation better than anything else will limitate the complications. When a joint has been open nothing will with more certitude bring on cicatrization of the wound. Though not from personal experience, he believes that in traumatic arthritis, the effects of irrigation must be very satisfactory. It is the only one which will prevent the slough of large

pieces of skin after severe firing, especially when performed in warm weather. In the treatment of fistula in withers or of poll-evil, some care is to be exercised in the use in cold water, as if there is no doubt as to its therapeutic action, it is possible that the effect of constant refrigeration in those seasons on a large surface of the skin, would give rise to visceral diseases with fatal terminations.

The mode of application consists in having a tube of India rubber varying in size or in diameter and to have the water pouring in sheet slowly over the wounds, cool is generally better than cold water. (*Archives Vet.*)

This mode of treatment we have put in use in a few cases and have every reason to be satisfied with it. The last case we applied it was in a large grey horse suffering with fistula withers, in which however but little benefit was obtained by the treatment.

CHOLESTIRHEMIA.

Under this title Mr. P. Megnin describes in the *Recueil de Medecine Veterinaire*, an affection of horses due to the presence of cholesterine in excess in the blood, a fact which he has been able to establish by the microscopic examination of the blood of animals who had died under peculiar circumstances. The interest attached to the history of the disease, which has some similarity with one of our American affections as far as its rapidity of development and its fatality induces us to reproduce a brief account of Mr. Megnin's article. The observations which are reported are from five animals, all in appearance perfectly healthy, in a fat and plethoric condition, died suddenly while at work, without presenting any symptoms of diseases; all were fat, all were full of life and were real pictures of health and all at once, while in harness or under the saddle, were suddenly seized with general tremblings of the whole body, profuse perspiration and had died in a few moments, one having presented some symptoms of paraplegia for a short time, with a stertorous breathing.

The post mortem revealed all the organs in perfect normal state, "the abdominal and thoracic cavities were healthy; the omentum and mesentery contained a thick layer of fat, the kidneys were surrounded by a fatty envelope; the liver was firm but marbled with fatty zones which made it look yellow; the cranium showed the meninges much

injected, the ventricles were full of reddish serosity, the cerebral superficial blood-vessels were engorged and the encephalon when cut, appeared in its whole thickness, covered with red spots or puncta of a characteristic aspect; each of these spots was formed by a hemorrhagic effusion. The blood-vessels have no atheromatous, varicuous or aneurismal alterations, but are surrounded by a mass of small crystals which are found also in the blood. These are little and thin lamellæ, trapezoid, rhomboidal or parallelogrammic in shape, a characteristic form, they are insoluble in water, but very much so in alcohol and ether, they are pure cholesterine."

After giving the chemical history of this substance, its mode of formation, its action on the blood, &c., Mr. Megnin draws the following conclusions:

1st. "The horse is subject to a diathesis which has a great analogy with the uremic diathesis of man, and which may be called cholesteric diathesis from the produce which causes it.

2d. The accidents, consequence of this condition, are either the production, more or less rapid, of tumours with elements of cholesterine (cholesteatoma of the brain, entheroma of blood vessels) which produce death sooner or later; either the deposits under solid form, in the blood of excess of cholesterine, which brings on embolisms of the brain, or the lungs, and sudden death.

3d. In cases of paraplegia, pulmonary or cerebral congestion, taking place in fat subjects and followed by rapid death, the blood ought to be chemically and microscopically examined to find the true cause of death.

4th. Therapeutics being unable to resist the fatal sequelæ of cholesterimia, all that can be done is to try to oppose the development of obesity in an animal, especially when advanced in age. (*Recueil de Médecin Veter.*)

AMPUTATION OF THE METACARPUS IN A COW.

The subject was a two years old, short-horn heifer; at the arrival of the Veterinary Surgeon, Mr. W. E. Litt, the animal was found standing on three legs, with a fracture of the off fore leg, about the middle of the metacarpal bone. Anxious to save the life of the poor beast, it was decided to amputate her leg. After being cast, a tourniquet applied above the knee to press on the radial artery, an incision

was "made by passing the knife directly through the leg, as close to the back of the metacarpal bone as possible, the edge of the knife being turned towards the operator, and about an inch and a half from the head of the bone. By then cutting downwards and backwards, the knife was brought out some three inches lower down at the back part of the leg." A similar flap was made anteriorly; the shaft of the bone was then sawn as high as possible, the artery secured, and the flaps brought together by thread sutures. A bandage of oakum and several rolls of unbleached calico finished the dressing. Eight days after this bandage was removed and the wound found healing. A month after it was almost entirely cicatrized. An artificial leg was made for her, somewhat on the same principal as the human wooden leg, and the animal seems to be at perfect ease with it. (*Vet. Journal.*)

CONSTRUCTOR ROPE CARRIER.

It is so called because it seizes and holds on a part sufficiently to allow of strong pullings without fear of its getting loose, and because it permits to take a firm *point d'appui*, whatever may be the form or direction of the organs. It consists of an iron rod of 0m. 70 centimeters (27 inches) in length and 0m. 01 centimeter (2½ inches) in diameter, curved at one end which is terminated by a small transversely elongated button with two holes; the other end has a handle with an eye of the same diameter as the holes of the first extremity, and of a cord 2 meters (six feet and half) long which can glide into the three openings of the instrument. Passing this cord through the openings of the handle, then through one of the holes in the front part of the instrument and through the second; it is prevented from sliding back by a small knot, and then it is ready for use.

The inventor reports cases of presentation of the hocks, one anterior presentation, the knees being flexed backwards, a presentation of the base of the neck, the head bent towards the flank in which he claims that the application of the rope carrier has considerably facilitated the delivery. (*Journal de Zootechnie.*)

A NAIL IN A COW'S LUNG.

Seized with an access of cough while laying down, (cough which the cow had for about two months) when urged to get up a flow of

blood and of very offensive matter took place through the nostrils and mouth. The animal carries her head down, eyes partly closed, the pulse is small and quick, pressure on the throat gives rise to dry and painful cough, respiration is accelerated, the walk is difficult and accompanied with grunting noise, the nostrils are bloody, auscultation reveals sibilant rale in anterior part of the left lung, on the right side little increase of respiratory murmur with tubular murmur above and in front.

Diagnosis. Cavity in the right lung, due to softening of tubercle communicating with the bronchia. The animal was destroyed for the butcher.

Post mortem. Adherence between the reticulum and diaphragm; in the substance of this adherence a nail running through the parts and reaching the lung as far as the heart. The lungs removed from the thorax have a very offensive odor and on the right side show a large tumour, which cut open is an enormous cavity filled with reddish pus, with a gangrenous smell, and having on its walls a semi-circular fissure in which the nail was resting with its point turned towards the heart. (*Journal de Zootechnie.*)

This is another example of the accidents which may accompany the introduction of foreign substances in the digestive apparatus. It is true that in many instances no complication will follow the presence of these foreign bodies, but a few cases are on record where fatal results have taken place.

CALCAREOUS TUMOUR OF THE BRAIN.

At a meeting of the Societe Centrale de Medecine Veterinaire, Mr. Bouley presented a pathological specimen, having some rough resemblance with some calculi found in glandular organs. It consisted of a calcareous concretion found between the cerebrum and the cerebellum, in one of the cerebellous choroid plexuses of a stallion, affected with immobility to an extreme degree, suffering with an excessive automatism, the animal remained unconscious in any position, his limbs crossed over each other, his head being carried low and being unable to raise it. The tumour was formed of carbonate of lime, with a small quantity of phosphate. (*Recueil de Med. Vet.*)

FRACTURES OF THE FLOOR OF THE PELVIS.

Mr. Nocard reports two cases of this kind of fracture.

The lameness accompanying these accidents is very characteristic. In standing, the left hind leg is carried forward, resting on the toe ; in walking the animal is very lame, his lameness being so peculiar that the leg seems to move all in one piece, and carried with a circular adductory motion. The conclusions of the paper are 1st, the floor of the pelvis can be the seat of comminutive fracture, involving the pubis and ischium where they are the least resisting, viz., in front and behind the obturator foramen. 2d. This fracture will unite quick, the ends of the bones being kept close together by ligamentous and muscular supports. 3d. Constantly, the cal of repairing process, presses atrophies and destroys the obturator, pelvi crural and posterior crural nerves which run through the foramen ovale, or pass in its neighborhood; hence paralysis, atrophy and degeneration of the flexor muscles of the leg and adductors of the leg. 4th. There remains a lameness which renders the animal unfit for work. 5th. This lameness is characteristic, and alone can induce to suspect the existence of the lesion. 6th. Rectal examination will, with certainty, establish the diagnosis and prognosis of the fracture. (*Archives Vet.*)

RHEUMATISMAL LAMENESS.

This lameness may be said to follow one out of every ten cases of pneumonia, pleuresy, pericarditis, truly inflammatory, or typhoid, appearing generally during the convalescence; they sometimes show themselves later, over one hundred and eight days after the invasion of the disease. In 1869 a mare after an attack of typhoid disease showed a synovitis which affected successively three extremities and ended by locating itself on the left front fetlock. Blisters and firing failed in removing it, a large blister and mustard poultice on the chest in the cardiac region were followed by the removal of the lameness. This treatment repeated in eleven cases of rheumatismal lameness, proved generally successful. (*Recueil de Med. Vet.*)

REPORT OF CASES.

SERIES OF CASES FOR THE HISTORY OF FRACTURES.

BY A. LIAUTARD, M. D. V. S.

A. Compound fracture of principal metatarsal.

Description. Brown stallion, 7 years, long tail 16 hands high, has trotted very fast and is kept for the stud about 200 miles from New York.

History. Taken to the blacksmith on the 25th of February, to be shod, was found some hours afterwards at the door of his stable with his leg fractured. My first visit was on the 26th, when I found him in a large barn with an oblique compound fracture of the large metatarsal bone of the right leg. The upper fragment of the bone protruding through the skin. Foaming blood, was oozing in small quantity through the wound. The leg was much swollen, and the animal in excessive distress.

Prognosis, most unfavorable, the nature of the injury, the length of time since it took place, the nervous character of the patient; everything pointed to a bad result. Still at the strong request of the owner the animal was placed in the slings and a temporary bandage supporting an imperfect gutta percha splint that I had with me, was applied until a better one could be secured. (It must be born in mind that the place was several miles off from the village, in a small farm where nothing could be found.) On the 1st of March, I found him very nervous, but quite comfortable, appetite improved. The dressing being removed the wound looks well, little suppuration is oozing. A piece of skin mortified by the pressure of the upper bony piece against the bandage sloughed off.

I had prepared a box of gutta percha, composed of two similar long halves or pieces, and made so as to embrace the leg from the hock down to the foot. They were well padded with oakum and the leg enclosed in them; the whole secured by turns of rollers. A window had been left in the center to allow the pus to escape, and the

leg being found perfectly immobile the animal was comfortably arranged in the slings and received his dinner. On March the 5th, the bandages are found loose, and though the gutta percha holds quite firm there is much motion between the ends of the bone. The swelling of the leg has subsided. The upper fragment of the bone is protruding through the wound, the lower one rubbing against it as the animal moves his leg. The dressing was reapplied again with more padding and the rollers put on tight with recommendation to tighten them if necessary.

March 8th. found him again in about the same condition, although the bandage is well in place, still there is yet some motion and it seems impossible to prevent it as the animal is constantly moving his leg up and down without an instant of rest. To try to reach this effect, the whole leg was placed in a sling by itself, being supported from the hock down and carried forward, this somewhat limitates the motions. The wound looks perhaps better, some organized tissue is thrown round the bones and in the cellular tissue surrounding.

March 12th. Same condition, his leg is kept more comfortably in the slings, less motion of the fractured extremities, there is a great amount of offensive discharge through the opening of the bandage. Carbolyzed wash is directed to be kept on it all the time.

March 19th. Two pieces of bone came through the window of the bandage, they are from the upper end of the bone. Up to this day he had fed well, but all at once he seemed to give up his case; his appetite stopped, his nervous irritability increased, he fights against the slings so much that it is thought better to let him lay, and from that day till the 22d he lingered, when he died from nervous exhaustion.

Questions: Was the attempt at reduction contraindicated? Would not amputation have been better? If so and successful, would the horse have been able to perform his duty as a stallion?

B. Compound fracture of lower maxillary bone. Dumb rabies.

On the 15th of July, 1876, a small terrier slut was brought to the American Veterinary College, with the following history: "That she had been bitten by a milkman's dog; the fracture existed in both branches of the maxillary bone, a little posterior to the neck of the bone, compound the edges of the bones protruding in the buccal cavity. She was dressed by Dr. C. W. Crowley, House Surgeon. On the 1st of August the bandage was removed on account of the offensive smell

of the parts; as the bone was found pretty well united, it was thought that she could be allowed to go about without the bandage, her kind temper and *affectionate* disposition justifying to a certain extent the measure. However, as soon as she was returned to her stall and let loose, she began to try to bite the cup in which her food was contained, and fearing she might injure herself, her jaws were secured again in the same way with lighter dressing. On the following day she was let loose in the hospital, she ran at a large grey hound and tried to bite him, he cowardly ran off, and the assistant house surgeon reported that she had ran at a Danish slut, and also at the cats.

On the 3d she looses her appetite, on the 4th she gives through her closed mouth a peculiar howling, and when let loose she tries to bite cats and dogs, but is prevented by her bandage. Her temperature is 103° F.; in the evening she begins to show signs of paralysis of the hind legs.

On the 5th, 7 A. M., her temperature is 104½ F., her hind limbs paralyzed—died at 12 o'clock.

This case shows the importance of thorough knowledge of the history of any patients. Had the incubative stage of the disease of this dog been as long as is in many cases of rabies, her fracture would have united, she would have gone home and God knows what terrible consequences might have taken place.

(*To be Continued.*)

INTUSUSCEPTION WITH OBSTINATE CONSTIPATION.

BY W. J. COATES, D. V. S., HOUSE SURGEON.

On Sunday morning, April the 8th, a large black geld, 6 years old, belonging to Messrs. Rafferty & Williams, was brought to the American Veterinary College Hospital suffering with colicky pains. He was taken with colics on Saturday evening, and they continued since; he would paw, get down very easy, roll on his back and stay in that position for four or five minutes at a time and then lie on his side for a while, get up again and so on the whole night, urinated freely but passed no feces; he did his usual work on Saturday and eat no feed that evening. The stable-man gave him one half pound of epsom salts and one oz. sweet spirits nitre, but did not relieve him.

On admission he looked very anxious, pulse 48 full and strong, temperature $101\frac{2}{5}$, conjunctiva and schneiderian membranes congested and all the symptoms of colicky pains. He was ordered Tr. Opii 2 oz. Ether Sulphur 2 oz., Chloroform $\frac{1}{2}$ oz. in oleum lini 1 O, no feed and all the water he would take. At 12 M. not being relieved, gave Aloes Barb. 7 drs. 2 P. M. very uneasy Tr. Opii 2 oz. 5 P. M. uneasy took away from him six quarts of blood and gave an injection of soap water to be continued every two hours. Tr. Opii, as may be required.

On the 9th at 7 A. M. easier, urinated but no feces, injections every three hours; opium as required and drench of soap water three times a day. 6 P. M. Oleum Lini 1 O., Ammonia Carb. 2 oz., Extract Bellad 1 dr. 10 P. M. very uneasy, same injection and drench of Tr. Opii 2 oz. in soap water.

On the 10th pain continually, rolling on his back and stayed in that position fifteen minutes. Pulse 64 soft irregular and intermittent temperature $102\frac{2}{5}$ and no feces, drenched with Pulv. Aloes Barb. 4 drs. Oleum Croton 5 drops., and Oleum Lini 4 oz. 12 M. uneasy, pawing and rolling; gave a drench of Tr. Opii 3 oz., Aq. Ammonia 3 drs. in soap water. 10 P. M. same drench.

11th, easier, no feces, injections every half hour, drench three times of soap water with Sulphur Sodæ 3 oz., Alcohol 3 oz. and opium as required. 5 P. M. easy, passed about two quarts of feces with *gangrenous portion of intestines* of a very foetid odor. 10 P. M. easy, drench of Tr. Opii, 2 oz., alcohol, 3 oz.

12th, easy, pulse irregular and weak: temp. $101\frac{3}{5}$, rectum full of feces and emptied; injections every three hours and Sulph. Soda 4 oz. in gruel morning and evening and a little long hay wetted, also Tr. Opii if required. 6 P. M. drank little of the gruel and eat the hay. 10 P. M. emptied rectum and drank alcohol 6 oz. in water.

13th, passed a shovel-full of feces and drank his gruel; pulse 52 irregular but stronger, temperature 101. Injections every four hours and alcohol 4 oz., morning and evening. 10 P. M. seemed easy, eat two quarts of scalded oats and took his alcohol.

14th, eat well, pulse 48 and regular, temperature $100\frac{1}{5}$, alcohol 4 oz. morning and evening.

15th, pulse and temperature normal and getting along nicely.

16th, little weak but doing well and ready to return home.

17, discharged to be fed light for a few days.

MELANOTIC TUMOR :—REMOVAL :—RECOVERY.

BY CHARLES H. HALL, D. V. S. (HOUSE SURGEON.)

The 20th of last March a spotted grey gelding, eleven years old, fifteen and three-quarter hands high, owned by Mr. Charles Mulford of this city, was brought to the American Veterinary College, with the following history : “The swelling which you see upon the lower part of the neck is now the largest it has been in three years, during which time it has been gradually increasing from nothing. It has not given much inconvenience till the last two weeks, when, on account of the pain from the pressure of the collar, I have been unable to work the animal.”

Condition on admission.—The tumor was situated in the inferior cervical region, a little to the right of the median line, just under the lower portion of the levator humeri muscle, in the triangular space, formed by this muscle and the anterior border of the sterno humeralis ; it was large, hard, well defined and firmly attached ; decided to be of a melanotic character, and its removal desirable ; the animal was in good health and spirits.

Prognosis, favorable.

Treatment.—On the 24th he was cast and a longitudinal incision of four inches was made over the enlargement, and after careful dissection with the aid of scalpel, and often by laceration of the adhesions with the handles of the instrument, a melanotic growth of fourteen and a half ounces in weight was removed without loss of blood of any consequence.

The final separation was effected with the ecraseur on account of a large blood vessel, probably a branch of the inferior cervical artery, passing through the tumor.

The cavity was then dressed with oakum and carbolic solution, and a tent of the former left in.

25th. The wound has no swelling, only a little oozing serosity from the lower portion ; treatment, bathing with cold water.

26th. Cavity doing well ; bathed in cold water.

27th. Cavity does not look as well to-day ; a little gangrenous spot appears in the center ; dressed with the spray of carbolic acid and chloride of zinc.

28th. Cavity looks better ; dressed antiseptically.

31st. Cavity looks well ; the animal continues in good spirits.

April 1st. Healthy pus is freely discharging. The antiseptic spray was daily applied, and from this time forward, the cavity rapidly filled, and upon the ninth instant the patient was discharged.

14th. The animal was brought to the clinic, and nothing but a slight cicatrix is visible.

VARIETIES AND NEWS.

AMERICAN VETERINARY COLLEGE.

At the suggestion of the Faculty of the American Veterinary College, urged for some time back, the Board of Trustees are considering the propriety of extending the course of lectures and alter the present requirements for graduation at the College.

PRIZE OFFERED BY THE U. S. VETERINARY MEDICAL ASSOCIATION.

Prizes are offered by the association to any of its members for the two best papers on any subject connected with Veterinary Medicine. The papers are to be delivered to the President of the Association before the 15th of July, 1877. They are to be headed with a motto and accompanied with a sealed envelope containing the name of the applicant, and directed with the similar motto heading the paper. The papers are to be read by the committee appointed as judges, and presented to the association at the next meeting.

NEW MEMBERS.

The month of March brings with it the close of the course of lectures of the veterinary schools of the new world, and the issues of diplomas to the successful candidates. The *American Veterinary College* sends out four graduates: W. J. Coates of New York City;

C. H. Hall of New Bedford, Mass.; C. H. Peabody of Waltham, Mass.; G. P. Penniman of Worcester, Mass. The *Montreal Veterinary College* on the 29th of March, granted the degree to seven gentlemen: James R. McLaughlin of Watertown, Mass.; C. C. Lyford of Rosc , Illinois; D. S. Brown of Genoa, Illinois; John F. Ryan of Montreal, Canada; William B. Hall of Leids, Megantic, P. Q.; Servil Hebert of Napierville, P. Q.; and William Murphy of Boston, Mass.

Out of these eleven new members of the profession, five are from Massachusetts, a fact which shows the appreciation of the veterinary profession in that great state.

The following gentlemen were graduated at the Ontario Veterinary College: Henry Hopkins, Green River, Ontario; M. H. McKillip, Chicago, Illinois; G. W. Bates, Wellington, Mo.; Herbert Hamilton, Toronto, Ontario; M. L. High, Bayham, Ontario; R. W. Newton, Bulwille, Ontario; E. Kenning, Elmira, Ontario; W. Langtry, Bronte, Ontario; M. Stalker, Ames, Iowa; E. S. Rogers, Bradford, Ontario; D. Stovel, Mt. Forrest, Ontario; R. A. Harding, Kingston, Jamaica.

WONDERFUL COWS.

Among the biggest of big stories is that of a cow, native bred nine years old, kept in Vermont, which yielded in 12 months 633 lbs. of butter. Her feed was pasture in the summer, and in winter 20 lbs. of hay and 8 quarts of potatoes. This is not very good feed, and yet another cow, not so well kept, owned by the same person, produced 504 lbs. in 12 months. And besides this we read of a short horn cow in Kansas, which produced a calf when *eleven* months old. Without saying this is impossible, it is safe to say it is within two months of it. (*American Agriculturist*.)

PRESERVING ANATOMICAL SPECIMENS.

For rapidly preparing bones and ligaments for museum purposes, Dr. L. Frederick recommends that, after the soft parts, except the ligaments have been removed, the preparation should be washed, dehydrated by alcohol and then plunged into spirit of turpentine. After two or three days maceration in this fluid, the skeleton is placed

in the position in which it is designed to keep it and dried in the air. In drying the bones and ligaments become beautifully white and the whiteness increases as time passes, the same process gives less satisfactory results for muscles. For a parenchymatous organ, on removing it from the turpentine bath, Dr. F. plunges it into melted wax or paraffin during half an hour to two hours, till the bubbles of turpentine have ceased to pass off. When withdrawn and cooled, the piece resembles a wax model, but it is far superior in its minor details; the colour of the organ persists. (*Vet. Journal.*)

DEATH OF A VALUABLE SHORT HORN.

The Earl of Bective has had the misfortune to lose by *tuberculosis* the famous short horn cow, Tenth Dutchess of Geneva, which was purchased by his lordship at the New York mills sale U. S. in 1873, for over 6,000 guineas. The dutchess has left of her breed one bull and three heifers, the youngest of which is stated to be especially worthy of the handsome dam. (*Veterinarian.*)

UNCOMMON CESAREAN OPERATION.

An unusual and interesting case of obstetrical surgery came to us from Florida. A physician states that having shot a large female shark, on opening her abdomen and uterus was rather taken back at the sight of four little ones, which freed of their respective placenta, run off into the ocean, on the shores of which lay their dead mother.

REPORT OF VETERINAY SOCIETY.

COMITIA MINORA OF U. S. VETERINARY MEDICAL ASSOCIATION.

A Special Meeting of the Committee Minora of the U. S. Veterinary Medical Society, was held at the Massasoit House, Springfield, Mass., April 20th. The Vice President, Dr. Theo. S. Very of Boston in the chair.

MEMBERS PRESENT:

Robert Wood, Lowell, Mass.

J. H. Stickney, Boston, “

Alexander Lockhart, New York.

James L. Robertson, “

Charles P. Lyman, Springfield, Mass.

It was voted that the appointment of Dr. E. Lewis Sturtevant of South Framingham be asked of the president as U. S. Commissioners of Agriculture.

2d. That a memorial to this effect be presented to the President of the United States for his kind consideration.

3d. That the memorial as read to the meeting be accepted, signed, sealed and forwarded.

4th. That the meeting be adjourned.

C. P. LYMAN, Cor. Sec'y.

CORRESPONDENCE.



VARIOLA EQUINA—HORSE POX.

BY W. BOYDEN, V. S. BOSTON.

On the 7th of March last, I was called professionally to the stock farm of Messrs. Moulton Bros., West Randolph, Vermont, a *distemper* having broken out among their fine stock of young horses. The history given me of it was as follows: “In the early part of February they had to buy hay, and attached to one of the loads hauled into their yard was a horse suffering from a disease apparently of a catarrhal nature. A few days after the visit of this animal the yearlings began to show symptoms of a kind of distemper characterized by discharge from the nostrils and in some cases sore throat; but little notice was taken of it except to use a little more care in protecting them from inclement weather. About the end of February and beginning of March, the two year olds began to show similar symptoms, in some cases of a much more complicated and alarming nature. The first animal shown me on my arrival at their farm was a magnificent looking Hamiltonian two year old entire colt, he had been ailing over a

week, and his appearance when first seen by me was as follows ; Pulse 65, eyes bright but conjunctiva very red, mouth hot and red but moist, nostrils very red with bright red crusts adhering to the septum, in some respects resembling the ulceration in glanders only that its color was different, and the sores apparently not so deep; the intermaxillary glands were also tumified somewhat as in glanders and quiet firmly set in the bone. The skin was covered with a pustular eruption discreet everywhere excepting between the thighs and below the knees and hocks where they were confluent, the limbs being stiff, painful and considerably swollen. The pustules were very numerous on the lips and nose, where there was no hair, and also on the sheath, the tops of many had fallen off leaving a bright red umbilicated projection, others contained bloody pus, they varied in size, the average being as large as peas—the lower part of the limbs looked very bad, in addition to the swelling, lymph had exuded and glued the hair together giving the appearance of *grease*. His bowels were constipated and he moved with difficulty, but his appetite remained very good, this was by far the worst case. In about a dozen others all the above symptoms were present except the eruption on the skin, on three others a few pustules were found. In two, strangle abscesses formed in the intermaxillary space. Professor McEachran of the Montreal Veterinary College had a short time personally written to me that variola equina prevailed among the horses there; I immediately became convinced that this was the same disease.

In answer to a telegram, I again visited them on the 21st, and found several new cases, but all were doing well with the exception of the first, large abscesses had formed on or just above the fetlocks of all of his legs, and also on his sheath from which much creamy pus was discharged leaving sores as large as the palm of a man's hand; the limbs were much disfigured, and he will probably carry the scars through life, the pox marks were gradually assuming a greyish appearance and drying up, so that but little trace of them will be left excepting on the lips and sheath. Mr. Fleming in his manual of Veterinary Science and Police, remarks the similarity of some of the symptoms to those of glanders and farcy which renders mistakes in diagnosis liable to occur, this was precisely my experience in examining the first and worst case. I rather hesitated before pronouncing it horse pox, feeling that it might possibly turn out a bad case of glanders and farcy. The stock having been so generally exposed I did not separate them,

but cleaned and disinfected the stalls and pens, cut down their feed and gave acidulated drinks in the mild cases, the worst cases were kept on tonics and their sores dressed with carbolic acid in solution. As this disease is somewhat rare the rather poor description I have given of it, may possibly interest some of your readers.

W. BRYDEN.

CEREBRO-SPINAL-MENINGITIS.

NEW YORK, *April* 19, 1877.

MESSRS. EDITORS :—

Professor Large in his article on Cerebro-Spinal-Meningitis published in the last number of the *American Veterinary Review*, misuses, perhaps inadvertently, the terms "Endemic" and "Epidemic." Reverting to their origin we find the term "Epidemic" derived from the Greek "demos," meaning the *people*, and "epi" from the same source, signifying "upon" ; hence an "Epidemic" can only be a disease affecting *humanity*.

The term "Endemic" is similar in its origin, the prefix limiting the disease to a prescribed locality, and cannot be applied to other than diseases affecting the *people*.

But, on the other hand, there are two terms of like meaning, applicable to diseases affecting the brute creation, and these are "Epizootic" for such diseases as spread over a large extent of territory, and "Enzootic" for those confined to a certain locality.

These terms are of Greek origin, "Zoon" meaning an animal.

Now, as regards the prophylactic virtues of Belladonna in "Cerebro-Spinal-Meningitis," although it may be a prophylactic, still I do not think the facts of the recent outbreak in Brooklyn will support this view of its desirable influence. I find by a reference to the article in question that over sixty per cent. of the animals in the stable were *attacked*.

Certainly this is as heavy a percentage as is often seen under any circumstances, yet we are told that until the ventilation was effective, from ten to fifteen new cases occurred every day, in spite of the administration of Belladonna, and that three or four new cases occurred even after the removal of the less than forty per cent of unattacked animals to quarters more or less remote from the immediate locality of

infection. Now, if Belladonna is a prophylactic in this disease, we should have expected it to reduce the average number of animals daily attacked, while subjected to the influence of the poison; yet such is *not* the fact.

Lastly, the percentage of deaths (over fifty) seems to me to be fully as great as could be expected, while I think it questionable whether good ventilation had not much more to do with the reduction in number and severity of the cases than Belladonna had.

Yours, respectfully,

L. L.

LETTERS AND COMMUNICATIONS RECEIVED.

W. Bryden, Boston, Mass. L. L., New York. L. T. Bell, Brooklyn. Theo. S. Very, Boston. Prof. McEachran, Montreal. W. Gadsden, M. R. C. V. S., Philadelphia. C. H. Peabody, Waltham, Mass. Surgeon's General Office, Washington, E. Mink, Rochester. A. Large, Brooklyn.

EXCHANGE.

Hospital Gazette, N. Y. Medical Record, N. Y. Country Gentleman, N. Y. American Agriculturist, N. Y. Scientific Farmer, Boston. Dumb Animals, Boston. National Live Stock Journal, Chicago.

SPECIMENS.

SENT FOR THE MUSEUM OF THE AMERICAN VETERINARY COLLEGE.

- | | | |
|-----|---|------------------------------|
| 21. | Ankylosed Phalanges, | C. P. Lyman, M.R.C.V.S. |
| 22. | Diseased Teeth, | Washburn, V. S. |
| 23. | 24. Intestinal Calculi, | J. Cattanaeh, V. S. |
| 25. | Urinary do. | do. |
| 26. | French Canadian Shoe, | J. L. Robertson, M. D. V. S. |
| 27. | Piece of Necrosed Bone from the Ischium, | L. T. Bell, D.V.S. |
| 28. | Diseased Molar, | J. D. Hopkins, D.V.S. |
| 29. | Bones of Fœtal Head of Horse, | J. S. Saunders, D.V.S. |

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30. Necrosed Lower Maxillary Bone,.....Theo. Very. V. S.
 31. Ankylosed of Entire Hock,.....do.
 32. Bandage for Forced Extention of Knee Joint,..Jh. T. Hahn, Esq.
 33. Body of 17th Dorsal Vertebrae, (fracture) A. A. Holcombe, D.V.S.
 34. Exostosis of 1st and 2d Phalanges (horse) do.
 35. Fract. of os coronet and Exostosis of all phalanges, do.
 36. Head—Osteo Porosis,.....Theo. Very, V. S.
 37. Digital Region, with Breaking Down, Periostitis and Necrosis,
W. Rose, V. S.
 38. Complete Ankylosis of Whole Hock, Ruminant,
 W. H. Armstrong, V.S.
 39. Crusta Petrosa from Upper Jaw,.....do.
 40 to 50. Bones of Anterior Extremity with
 centers of ossification,.....do.
 51. Keraphylocele,.....J. L. Robertson, M.D.V.S.
 52. Breaking down of Flexor Tendons,....L. Plageman, M.R.C.V.S.
 53. Running Plate on a foot,.....C. W. Crowley, D.V.S.
 54. Running Shoe,.....do.
 55. Supplementary finger from a colt,.....R. Wood, V. S.
 This was reported in American Veterinary Review
 of April, 1877.
 56. Odontomatous Tumour, do.
 57. Fractured Rib united with adhesion of the pleura, C. P. Lyman,
 M. R. C. V. S.
 58. 59. Ring Bones,.....J. F. Winchester, S. B.
 60. 61. Occulte Spavin,.....do.
 62. Ulcerative arthritis of the hock,.....do.
 63. Spavin,do.
 64. Carious os Pedis right and left, sequella of chronic laminitis, J. F.
 Winchester, S. B.
 65. Side Bones,.....J. F. Winchester, S. B.
 66. Osteitis Metacarpal Bone,.....do.
 67. Side Bones,.....do.
 68. Hoof torn from the foot of a colt, A. Large, M. D., M.R.C.V.S.L.
 (See American Veterinary Review, April, 1877.)
 (To be Continued.)

AMERICAN VETERINARY REVIEW,

JUNE, 1877.

ORIGINAL ARTICLES.

PYOGENIC CELLULITIS.

BY E. MINK, V. S., ROCHESTER, N. Y.

On May 4th, 1875, I was called to see a fine bay gelding, five years old, one of a valuable pair owned by P. I. Thomas, Esq., of Rose, Wayne Co., N. Y., forty-eight miles distant from this city.

On arriving there, I found that a number of horses and colts owned by Mr. Thomas, and kept on the same premises, had suffered, and some still were suffering from pyogenic fever (strangles). And this one was also a victim, as was clearly manifested by the usual swelling in the submaxillary region, and in addition to this, his off fore limb was the seat of diffuse inflammation and suppuration.

In the absence of strangles, I would have diagnosed this affection of the limb as phlegmonous erysipelas or erysipelatous cellulitis. Perhaps one or the other of these terms would be more proper than pyogenic cellulitis; yet this seems to me, under all the conditions then existing, a more appropriate name than either of the others for this local affection.

For two or three weeks prior to this attack and up to it, he was troubled with cracked heels of this limb. I regard the diseased condition of the heels as the cause that determined pyogenic action to this limb.

The probability is that in the absence of cracked heels, the specific disease would have run its regular course, and suppuration would have been confined to an abscess or abscesses in the submaxillary region and terminated favorably.

The treatment ordered was as follows: Fomentations to the swollen parts; a laxative, nutritious diet, and if he refused solid food, was to have two or three gallons of milk daily. Whisky, tinc. muriate of iron, and quinine were also to be given three times per day. His allowance of water to be limited so as to induce him to drink the milk. Any accumulations of pus were to be opened and let out.

On May 13th I again saw him. He was then able to move around some, was out eating some grass, and suffering but little apparent pain in the limb, though much emaciated. There was pus in the limb above the knee, burrowed around and beneath the muscles of the parts, difficult to let out by lancing.

I advised tonics, stimulants and nutritious food, but he gradually failed until his condition was hopeless, and he was destroyed.

— May 26th, 1876, was called to the Rochester Driving Park to attend a bay gelding, four years old, for the purpose of treating a capped hock. It was of recent origin, and attended with slight inflammatory action. I advised a cooling lotion, which was applied for about a week, when I passed a seton through it. This was immediately succeeded by more than the usual amount of inflammatory action resulting from the use of setons in such cases. A laxative diet, some magnesia sulphate and fomentations to the limb were ordered.

I found that the seton failed to establish a discharge of healthy looking pus. I intended leaving it in until such discharge was produced.

I again visited, by request, on the 11th day of June, and found him suffering from pyogenic fever. The submaxillary space was much swollen, and the setoned limb affected with diffuse cellular inflammation and suppuration. About four inches above the tarsus, on the inner aspect of the limb, I found a collection of pus, which I opened. This wound afterwards showed a tendency to slough.

Pus formed in various parts of the limb, and around the throat, lips and side of the head, which I opened, from time to time, as it collected. Large collections of pus also formed in the scrotal region which were opened and let out.

His condition continued without any material change until about the 10th of July, when improvement commenced, and he finally made a complete recovery.

In regard to treatment he was allowed to run at grass during the day in an orchard around his stable, and occupied the carriage floor of a barn at night. His water allowance was restricted, and its place freely

supplied with milk. In addition to this he was allowed oats, corn, or a little of any nutritious food that he would eat. The swollen parts were fomented with warm water, and then dressed with a lotion of carbolic acid. The medicines used internally were whisky, belladonna, iron sulphate, nux vomica, and ginger. The whisky was given in his milk, and the belladonna in a syrup thrown on his tongue. These were given during the period when the vital powers were most prostrated. The iron, nux vomica and ginger when convalescence was apparent. His recovery was complete about the 1st of August.

— On the 30th day of November last, I was called to attend a valuable black mare, six years old, about sixteen hands high, well proportioned, and in a condition that showed her system had been well nourished, possessing an abundance of both fatty and muscular tissue, an animal that had been converted from a pacer to a trotter, and capable of trotting a mile in less than 2.40, the property of S. G. Curtice, Esq., of this city.

In reply to inquiries, I was informed that she had never had strangles, nor had she been a victim of the epizootic influenza in 1872, although she had been permitted to run in a field with other horses that were affected with it at that time. She had not been used prior to this sickness from February, 1876, until within four days previous to this attack. She had been allowed this period of idleness in consequence of a curb she had thrown out. She appeared well and lively the first and second time she was driven, but on harnessing her the third time, an abrasion of the skin and a swelling at the base of the tail (caused by the crupper,) was discovered. Swelling and inflammation rapidly increased until the day I was called, when I found diffuse inflammation and suppuration of the tail, extending throughout its entire length. I made a number of openings from which pus freely escaped. There was also much swelling and tenderness along side of and over the region of the sacrum at this time. Her pulse was 62 per minute, soft and compressible—appeared much depressed. Next day I was informed that she showed some difficulty in swallowing either food or water. On examination I attributed this to a want of power in the muscles of deglutition, the result of the generally depressed condition of her system, as I found no swelling of any kind about the submaxillary region, nor any evidence of pharyngitis or laryngitis. In a few days pus had formed and collected over the region of the sacrum, which was also provided with an opening. She now showed great prostration, and could scarcely move without danger of falling. I placed her in slings, and ordered a liberal allowance of milk

(as she refused nearly all solid food), and six ounces of whisky and a scruple of quinine three times a day. Each dose of this seemed to temporarily increase her appetite, and she would immediately after take some solid food—oats, corn or hay. *A mash of malt* was given her every night, of which she seemed disposed to partake, and in a short time got so that she would eat two quarts at a feeding.

She continued along without material change in her condition for about twenty or thirty days, when her limbs, floor of the abdomen and chest became enormously œdematous or anasaruous. The whisky and quinine were continued up to the time her limbs, etc., became so much swollen, when I prescribed dilute sulphuric acid and pul. cinchona to be given in a pint or two of ale three times per day. The openings I had made continued to discharge more or less pus, and new collections formed every few days extending down the posterior illo femoral region, between the thighs, and to and in the mammæ, all of which were opened when the necessity of doing so was indicated. Her condition seemed nearly hopeless. Just above the tuberosity of the ischium a large collection of pus formed, extending between the muscles of the parts, which I cut down open. The pus gushed out, it seemed as if I had struck a reservoir of it.

From this time forward she improved; the discharges gradually diminished, her appetite increased, the œdema of the limbs, etc., gradually disappeared, returning strength was apparent, and she was able to move around some when allowed out of the slings, but was unable to rise, when down, without assistance with the slings. After using the dilute sulph. acid for about ten days, I substituted for it tinc. mur. iron, which was given with the ale and cinchona. She continued improvement until about the 1st of February, when both the owner and myself felt much elated over the prospect of a speedy recovery; but suddenly, to our surprise, she was seized with a painful synovial distension of the hocks and knees, and scarcely able to move again. I then prescribe iodide potas. to be given with pul. gentian and ale three times per day, and the painful joints were rubbed with soap liniment. Within ten days from this time she commenced improving, and soon got so that she could get along without the slings. Pus ceased to flow from all but two small openings, one just above the tuberosity of the ischium, and the other at the side of the base of the tail. Fluid injected in one came out of the other.

The muscles of the right hind quarter were left in an atrophied condition, and a corresponding loss of muscular power existed, and she

would knuckle over in this limb occasionally in walking. This quarter had been least affected with suppuration. The muscles are now developing with exercise and good food, and she is able to trot off quite well.

A slight discharge still continues from the two openings referred to. I have injected these every second day, with a solution of chloride of zinc (five grains to the ounce,) for a while. Within the last week have twice injected comp. tinc. iodine.

The question that presents itself to my mind in this case is whether this was, in reality the specific disease called strangles (pyogenic fever,) and if so, then I think that the abrasion on the tail caused by the crupper must be regarded as the "*vis fronte*" that determined pyogenic action of the specific disease to the tail and adjacent parts, the same as the setoned capped hock drew pyogenic action to the limb of the second subject referred to in this paper.

I wish to add a few lines, in concluding, in regard to milk as an article of diet in low forms of disease, and when solid food is refused. In my experience I have found that horses will drink it voluntarily when they will reject oatmeal gruel, and I think it preferable to any liquid food that can be given, as it supplies *all the elements of nutrition* which can scarcely be said of any other single article of diet. I think that with good, pure air, milk and whisky, nearly all cases of typhoid influenza can be successfully treated, or, at least, as many cases can be treated as successfully with these agents as with any other system of treatment usually adopted.

ROCHESTER, May 1, 1877.

CEREBRO SPINAL MENINGITIS.

BY THEO. S. VERY, V. S.

I have read with a great degree of interest, Prof. Large's account of the recent outbreak of cerebro spinal meningitis in the Brooklyn car stables, and am convinced that many of the conclusions drawn by him in relation to the pathology and treatment of the malady are strikingly correct. It may appear that nothing which I might write will add to the knowledge to be gleaned from what he has already given to the profession concerning it; but as our methods of thought differ widely, and we sometimes take opposite channels for the transmission of the same ideas, I trust not to be considered tedious or intrusive if I make a few

suggestions which have occurred to me ; but, on the contrary, that my remarks may create additional thought and inquiry among those who may read them, even as I have studied and endeavored to fully comprehend the excellent article before alluded to.

I regard the pathology of the disease, as given by Prof. Large, as being certainly more satisfactory and compatible with its usual symptoms than that which traces the cause of those symptoms to inflammation of the membranes of the brain and spinal cord, and am pleased to be able to adopt it for that reason, if for no other. The symptoms in all the cases I have seen, have not included any signs of inflammation, characterized by unusual force or frequency of pulse, of increased temperature, or of positive pain. On the contrary, something has appeared to act depressingly on the whole system, so that no function could be said to be performed correctly, and no organ entirely free from that influence, varying, of course, in intensity of effects according to conditions and circumstances.

When I first became familiar with the disease, my ideas concerning some of its symptoms and causes and effects were of the crudest and most automatic kind. An animal was found unable to maintain the erect position either partially or wholly. Apparently, the difficulty resided in the hind limbs, or posterior to the lumbar region, ergo, an affection of the spinal cord, or its membranes adjacent and anterior to the structures wherein the loss of muscular power appeared to be, as in paraplegia ; for which nothing more potent and desirable, on the whole, than counter-irritation, in form of mustard and hot water applications, could be suggested. For internal remedies, copying after others, of course, I used aloes, belladonna, gentian, carbonate of ammonia, etc., etc., but I relied on the external applications to help me more than all the rest, and had them applied with great care and regularity. There was, I believed, a condition of things connected with the dorsal and lumbar portions of the cord, which must be relieved in a mechanical and positive manner, and this was believed to be the way to do it. If conditions were favorable, and the disease did not "creep up" to the brain, my patients recovered—some of them "after a fashion."

I cannot claim to be an observing person in many important things, but I had not a long acquaintance with this disease, before becoming aware that a good deal had escaped me in comprehending its true character, and in the recognition of some of its peculiarities. One of the first errors I found I had made, consisted in localizing the disease where only a part of its effects were shown.

Others I might mention, but as some of my readers undoubtedly have had cause to modify their views concerning some such subjects, they, perhaps, can imagine that I might confess more than I have already. Now how does the malady present itself compared with the superficial ideas which I held concerning it. To be sure, the animal drags the toes, and is unsteady on the hind limbs. So he is when ready to fall dead from exhaustion resulting from colic or other disease. But are the effects of this disease not apparent in the fore limbs as well as in the hinder ones? Certainly, in most cases, they are. There is the same lax, useless condition, proportionately, as we see in influenza, or other debilitating diseases, where the weakness is apparently confined to the hind limbs, but which really is general. Instead of local paralysis, have we not in such cases of spinal meningitis a general loss of muscular power? In describing symptoms, the respiration is said to be normal, unless it be noticed to be hurried or labored. Has it not often been observed to be slower than normal, and less vigorous?

There is manifestly an impaired condition of the digestive organs, a devitalized condition of the excretory organs, the heart's action is modified, a general loss of vigor, and a peculiar expression of countenance mark the disease. The pain is not sufficient, in most cases, to make it noticeable that there is any, unlike the ordinary cases of paraplegia, in which the animal, particularly in fatal cases, thrashes about, and shows symptoms of the most intense suffering. The peculiar motion, as of running like a race-horse, with the fore legs—the hind ones remaining immovable—in horses prostrate with that disease, is familiar to all practitioners. I have never seen it in spinal meningitis.

We have in cerebro spinal meningitis, a disease distinct and different from all others. That it is produced by a specific poison, I have no doubt. If we had that poison we might produce the disease by inoculation at will. Prophylactic treatment, so far as belladonna is concerned, in my opinion, prevents attacks by overcoming effects of this poison, and not by placing the system in a condition to resist it as might be supposed. There are many, of course, that would not imbibe the poison without any treatment, and so far only, as I have said, can I see that prophylactic treatment prevents disease of this kind. If otherwise I shall be pleased to hear it explained.

That the disease is confined to illy ventilated and badly drained stables, or that it prevails to a greater extent in such than in others that are well aired and drained, has not been my experience. The greater number of cases I have had this year, have been in private stables where

the sanitary conditions were all that could be desired. And in this connection a word or two concerning a common error may not be un-instructive. It has sometimes been taught, and very generally accepted, that an excess of carbonic acid in the air of a room or a building is the condition favorable for the production of disease. It is extremely doubtful if this is true. According to reports of experiments by Sir Humphrey Davy, a large percentage of carbonic acid may exist in respired air without producing positive physiological effects to the person inhaling it, and the percentage, even in the most crowded and illy ventilated apartment will seldom be found to exceed 0.5 per cent. So that a person or an animal might possibly receive the poison producing spinal meningitis, or other contagious disease, on the top of Mt. Washington as in what is considered the vitiated air of city stables or dwellings.

Our methods of arriving at conclusions in many cases have been hasty to say the least, and a great many accepted theories about which we have no doubt, because we do not think sufficiently, will not stand investigation and inquiry. I do not suppose that a difference in the proportions of oxygen, hydrogen, or carbonic acid in respired air would favor the carrying of poisonous gases, vapors or dust, any more than a preponderance of ether, oxygen or hydrogen in the water of mineral springs affects their medicinal qualities. Possibly, through a chemical analysis of air, we may some time ascertain some of the real causes of pestilence which are not already known.

The result of three post-mortem examinations of cases of cerebro spinal meningitis have failed to show me any softening or alteration in appearance of the spinal cord or its membranes, except of the medulla oblongata and its membranes. In all were the dorsal and lumbar portions apparently free from the effects of any disease. In the last one at which Mr. C. P. Lyman, of Springfield, was present, we found undoubted pus corpuscles in the pelvis of the kidneys, and under the pia-mater of the brain, portions of which were the same day examined by Dr. Treadwell, of Boston, under the microscope, at which examination we were also present. In Prof. Williams' work on Veterinary Medicina, may be found a very interesting article from the pen of Mr. Lyman, which contains views regarding the etiology and pathology of the disease, similar to those expressed by Prof. Large. I have thus far had twenty cases of cerebro spinal meningitis this spring, of which all have made good recoveries, except one which died the second day. To none, except that one, has any external application been made, except additional clothing in cases of clipped horses.

If any result is produced, I am of the opinion that hot water, mustard and other counter-irritants applied to the lumbar region do harm rather than good. My treatment has consisted of a full dose of cathartic medicine, followed by a powder composed of : Atropin (Keith & Co.'s), grs. iii ; arsenic, grs. ii. placed on the tongue three times a day until convalescent.

This has served me very well as will be seen by the results obtained. I do not claim that it has any particular merit, or that it is particularly scientific, or that some of these cases "might not have recovered without any treatment," but such as it has been I am pleased to relate it.

VETERINARY EDUCATION.

BY D. McEACHRAN, F. R. C. V. S.,

PRINCIPAL OF THE MONTREAL VETERINARY COLLEGE.

[*Continued from Page 50.*]

In the last number of the REVIEW we intimated that we would refer in this to the profession as taught in Canada. Occupying the position which I do, and having from the commencement been intimately connected with Veterinary education in this country, I feel it a somewhat delicate duty to criticise the curriculae of our Veterinary Colleges, more especially as that criticism will necessarily be, in some respects, unfavorable. Unpleasant as the duty is, the interests of the profession demand that we should let no obstacle debar us from a fearless exposure of what we know to be wrong, and an equally public recognition of true merit wherever found. I trust, therefore, that the following remarks will be credited to a desire on the part of the writer to bring about reforms in our Canadian schools which, as the sequel will show, are urgently demanded.

It is not my intention to deal with the early struggles of the science in this Dominion ; suffice it to say that the history of Veterinary education dates from 1861, when Professor Smith commenced to give a six weeks' course to the agricultural students attending Professor Buckland's lectures at Toronto. Having been associated with Mr. Smith for three sessions at the commencement of the school, I am in a position to testify to the many difficulties and disadvantages under which the

school labored, as well as to the great credit due to Professor Smith for his perseverance and success in overcoming these difficulties.

Every allowance must be made for the imperfections incidental to the establishment of a school to teach a new science in a new country. Nor do I think the same high standard of education was necessary in these days, short as the time seems. The rapid increase, not only in numbers but also in value of our agricultural stocks, consequent on the progressive development of the resources of the country, by the opening up of the Provinces by railway and steamboat communication, should naturally have led to a corresponding improvement in the curriculum and requirements of the school, at which young men were taught how to manage these animals in health, and treat them when laboring under disease; but I am sorry to say we do not find such to have been the case. And while I would desire to give Professor Smith a very great deal of credit for what he has done for Veterinary Science in Canada, I would not be doing my duty to the profession were I not to give him also his just share of censure for refusing persistently to make reforms in the curriculum of his school, which the advancement of the science has long ago demanded.

In a letter dated June, 1870, from a member of the profession, holding the degrees of M. D. and M. R. C. V. S., then residing in Toronto, who examined the students weekly at Professor Smith's request; during the session of 1868-9, I am informed that, though the students attended a few lectures on Physiology by an eminent teacher, they knew next to nothing of the subject; that they attended no lectures on Elementary Chemistry, and were equally ignorant of that important study; and he further informs me, that Professor Smith, on being remonstrated with, declared, that *a knowledge of Chemistry would be of no use to them in practice*. In consequence, the gentleman referred to, declined to act as an examiner, or accept an invitation to the annual dinner, protesting against sending any one of the students of that year to the country as fit to practice—yet we find that no less than seven received the diploma of the Toronto School that year. Since then, there have been some able young men entered this school—men who had been accustomed to read and study—and men who, had they been afforded proper opportunities, might have become pillars in the science. Some of them who, by their own exertions, attained very creditable degrees of proficiency—and as remarked to me by one of the examiners who assisted at the last examination in Toronto, made them (the examiners, mostly former students) blush for the low standard on which they themselves had been graduated.

These men, however, are the exception, as no qualifications are necessary for admission except the payment of the fees, there being no matriculation examination. Students from other colleges can enter here on their own statement of having attended lectures elsewhere, and without producing certificates from the college or Professors under whom they assume to have studied; in fact, such men are encouraged, as may be seen by referring to last issue of the REVIEW. Were this practice confined to educated men, as I believe the gentleman there referred to is, the injury to the profession would not be so great as to grant diplomas of qualification to persons wholly incapable of acquiring sufficient knowledge of science to pass any examination, instances of which can be cited. And it is much to be regretted that discontented students, who doubt their capability of graduating at other schools, or who fail altogether, can receive a ready welcome and assurance of success at Toronto.

In the prospectus for 1876-77 we read, "The winter session begins from the 20th to the 25th of October, . . . and *junior students can enter at any time until January.*"

"Students intending to prepare themselves for the practice of the Veterinary art as a profession, are required to attend two sessions at least."

Now, suppose a student enters in January (few will come in October if they may as well enter in January), what benefits can he derive from, say, for instance, Dr. Croft's lectures on Chemistry, which have been in progress since the beginning of October, would he not be in the same position as if he were to commence arithmetic at quadratic equations, instead of the multiplication table? What better position is he in with relation to Physiology, Anatomy, or any of the other subjects?—yet this counts one session. Again, supposing he enters his second session in October, and even does not take advantage of the December examination (as the prospectus leads us to believe he can), but attends on until the April one, can it be possible for any young man, no matter how studious, to acquire more than a mere rudimentary outline of the abstruse sciences of Anatomy, Chemistry, Materia Medica, Physiology, Pathology, and all the collateral branches of study which are said to form the subjects of examination?—the first three months of the nine forming the two sessions required being lost, as we have seen, in a great measure.

Suppose, even, that they could pass a fair theoretical examination, how is it possible, in the fifteen months over which their pupilage ex-

tends, that they can acquire practical acquaintance with even the ordinary details of practice?

It is a notorious fact, however, and much to be regretted, that even this short course is not in all cases required.

Great improvements have lately been made in this school by the enlargement and improvement of the buildings, especially the dissecting-room, and the addition of a large room for a museum as well as a room for a library.

It will be a matter of surprise that, although this school has been in operation for fifteen years, almost no attempt has been made to collect the usual requisites for illustrating lectures, such as anatomical or pathological specimens, models, or diagrams; no library, or any attempt at commencing one, has been in existence till last year, when the government, recognizing the importance of a museum and library, granted \$2,000 to be expended in books, models and diagrams. It is satisfactory to know from the last prospectus, that, "the museum, when completed, will be the largest Veterinary Museum in Canada;" but it would be more so if we had some idea when it will be completed; for if the progress made in this direction is not more active during the next fifteen years than during the past, young men of the present day will derive but little advantage from it.

With the above facts before us, we can understand the reason why the prospectus informs us that, "we deem it unnecessary to give an extended and complicated description of the synopsis of lectures more likely to mystify than enlighten intending applicants." This must mean one of three things—first, that the class of students expected are uneducated, or that they would be capable of understanding the nature of their studies; secondly, a course so very technical and scientific as would deter intending students from attending them; or, thirdly, such an arrangement of lectures as is incapable of being synoptically indicated in a prospectus.

The latter, certainly, must be the case, if it is arranged to suit the convenience of students entering any day from October till January. As a sequence to the above, we find the advertisement of this school reading as follows:

"The Ontario Veterinary College is attended by the largest number of pupils, and has the greatest number of graduates in successful practice of any Veterinary College in America. Apply to Dr. Smith, V. S."

Such is the Ontario Veterinary College. I sincerely wish I could have been more favorable in my criticism of it; but the dogged per-

sistence of those at the head of that school to prevent all progress, to continue a course so inefficient and detrimental to the best interests of the science, compels me to state facts which can be supported by the best of testimony, in the hope that public opinion will induce them to make those changes which have been privately urged upon the Principal by his best friends for many years, and for the non-compliance in which the only excuse given is the fear of losing a few students from their classes.

History is said to reproduce itself, and in a small way we find a reproduction of Coleman's conduct in retarding the progress of the profession through illiberal motives, without the slight counterbalancing high tone which Coleman strived to give it.

That Professor Smith is capable of raising the educational status of his school to its proper requirements no one who knows him will doubt, and the liberality and willingness of the medical gentlemen of Toronto to extend to him an enthusiastic co-operation leaves him no excuse for not doing so is also well known. The necessity for an extension of the curriculum has been frequently urged on him by professional friends—former students and experienced agriculturists. Professor Liautard, as Principal of the American Veterinary College, and the writer as Principal of Montreal Veterinary College, have both urged, privately, on Professor Smith the necessity for improvement in his course and length of study, asking him to meet us for the purpose of making the necessary improvements in all the colleges, but in each case with a refusal to do anything whatever, giving the writer distinctly to understand that he would do nothing whatever that would risk lessening the number of paying pupils, the interests of the profession as a profession being to him a secondary matter.

It now remains to be seen whether public opinion will induce the Toronto School to adopt a standard of education corresponding to the importance of the science in relation to the great stock interests of Canada and the United States, or whether students will be attracted by the number of graduates sent out by the school, without any reference to the standing of the school as an educational institution.

The Montreal Veterinary College was established in 1866 on the removal of the writer to that city, under even greater disadvantages than at Toronto, owing to Montreal, and the Province in which it is situated, being a French settlement, except from the city itself, where the English language is spoken by nearly half of the population ; but few pupils could be expected from that Province unless the lectures

were given in French. Accordingly, we find that the progress made in numbers attending this school for a time was not very encouraging to the promoters of the enterprise. Notwithstanding all these obstacles, the curriculum adopted extended over three sessions, of six months' each, being one session more than was then required at either London, Edinburgh, or Glasgow, and embraced Botany or Zoology, Chemistry, Institutes of Medicine (including Physiology, Histology and Pathological Anatomy,) the full course of the Medical College—Veterinary *Materia Medica*, Veterinary Anatomy, and Veterinary Medicine and Surgery.

As above stated, three full sessions had to be regularly attended before they were allowed to go up for the final examination.

The Board of Examiners consisted of Professors of McGill University, and Veterinary Surgeons, who were appointed by the Board of Agriculture.

For five sessions the lectures were delivered at the Medical School; but on the removal of that school to the new buildings near to the University, for the convenience of teachers and pupils, a lecture room was rented down town, which answered the purpose until the present college was built.

The progress made has been extremely satisfactory; notwithstanding the difference in length of time required to study, and greater cost than at Toronto, twenty-two pupils attended the full course last session (eight being from different States of the Union), seven of whom passed the examinations, and were admitted members of the profession.

At this school, as well as at New York and Toronto, no matriculation examination has been required until last session, when all the French Class had to pass an examination in Reading, Grammar and Geography, one being refused admission for inefficient education. That this has been an injury to the profession I am well aware; but although I have repeatedly urged on the Toronto School the necessity of it being instituted, Professor Smith could not be induced to do so; consequently, were we to insist on matriculation as well as nearly double the length of time, it would have had the effect of sending many of the students to Toronto.

Now, however, that the American Veterinary College has acceded to the proposition urged by their esteemed Principal, a matriculation examination will be required on entering at Montreal as well as New York; and it is to be hoped our friends at Toronto will soon follow the example.

At Montreal, a course of instruction in French has been added, similar in all respects to that in English, which has been heartily supported by the Government and people of the Province; and it is expected that before long it will equal in numbers the English department.

This school possesses a valuable museum, containing skeletons of nearly all the domestic animals—dissections, morbid specimens—models by Auzox, of the eye, ear, larynx, etc., etc.

The lecture room is furnished with diagrams, illustrating every subject lectured upon.

The library contains a nucleus of ——— volumes, embracing most of the English and French standard works, which are being constantly added to.

In addition to these two schools, another has been opened in connection with the Agricultural College at Guelph, Mr. E. A. A. Grange being Lecturer. I understand that it is not intended to grant degrees from this school other than as forming part of the general agricultural curriculum.

Veterinary education in Canada has been greatly assisted by the formation of a Veterinary Medical Association in connection with each of the Colleges, at which papers are read and discussed to the great benefit of all attending them.

A year and a half ago an effort was made, at the instigation of the writer, to form a Dominion Association, having for its object the advancement of the science, and bringing the members of the profession together in friendly intercourse, with a view to taking steps to form a central body to promote the interests of the profession in the Dominion.

The proposition met with every encouragement in this Province, and ten members of the profession in Ontario expressed the utmost enthusiasm, Professor Smith being the only one who introduced the discordant element, indicated by the following expression: "A Dominion Association should fairly represent the views and interests of the whole profession, and not those of any particular locality."

Hence we were not surprised to receive the following resolution from the Secretary of the Ontario Veterinary Association, said to have been passed unanimously at a meeting of the Directors:

"That the Veterinary Profession in this country being comparatively a young body; and as we have recently formed a Veterinary Medical Association in Ontario, which, so far, appears to meet the requirements of the Profession in this Province, it is not expedient just now to form a Dominion Association, to become the Corporate Body of the Profession in the Dominion."

As there are eight Directors, five of whom expressed themselves most enthusiastically in favor of such a much-needed association, we are forced to the conclusion, that the "*particular locality*" from which the progressive step originated had been strongly urged against its formation; and thus the progress of the profession has been stultified for the time being.

It is satisfactory to know, however, that a more independent feeling is now being manifested; that influences are being brought to bear on the schools, and those having control of them, which, doubtless, will result in the accomplishment of much-to-be-desired changes, both in the teaching of the profession and position and privileges of its members.

[TO BE CONTINUED.]

EDITORIAL.

VETERINARY EDUCATION.

We publish, in this number of the REVIEW, the third of the series of articles on Veterinary Education that our friend, Prof. McEachran, has kindly forwarded to us, and with this last article, feel ourselves obliged, as connected with the American Veterinary College, to make a few remarks concerning what is said of that institution, so as to place it, once for all, in its proper and true light before the profession.

First of all, let us state that, as Prof. McEachran fully remarks, we are fully alive to the fact, that the Session, as carried so far to the American Veterinary College, is too short, and that we have been for a long while back endeavoring to have the course extended to three Sessions. We are happy to-day to announce that the subject has thoroughly been investigated by both the Board of Trustees and by the Faculty, and that this condition of two Sessions will soon be out of existence, as is announced in the circular of the College which has just been distributed.

As it has always been the desire of the Professors of the American Veterinary College to give to their students all that could be possibly advantageous, without any consideration for "mercenary motives or self-aggrandizement," and ambitious of improving the opportunities and facilities for the education of the class by following the progress and advance made by the Medical and Veterinary Professions; that institution, following the example set by the Harvard Medical College and the Medical

Department of the Michigan University, has taken the following decisions: The first, which will necessarily bring in the study of the profession a better class of men, better educated students, is that by which all applicants for matriculation will be required to present a certificate of collegiate or academic studies, or to submit himself to a preliminary examination; second, which establishes graded education, thus obliging the student to devote his whole attention to some special branches, instead of cramming every subject at once, and to prepare himself for an examination at the end of the Session; and the third, the requirement of attendance to three full courses of lectures, being divided into a Winter and a Spring Session, the first of five months, the second of six weeks.

These alterations do not mean perfection. For one whose course of studies were of four sessions of over ten months each, we know too well that eighteen months are insufficient to obtain the qualifications which the diplomas say the graduate possesses; but one must recollect that the American Veterinary College is chartered under peculiar laws, and that it cannot yet impose whatever good their desire may be. All over our continent our medical colleges, with the exception of two, carry on their curriculum with only two full courses of lectures. Therefore, in initiating the three new decisions, the American Veterinary College takes a step forward amongst the first of the Medical Colleges in the United States—first of the Veterinary Schools of this continent.

Now for the other objections made by our esteemed friend. He says: "Again, the oral and practical examination being by *the Professors of each department of instruction*, is certainly not to be recommended, nor will the public accept its results as being as *reliable as if they were examined by an outside and impartial Board of Examiners, unconnected with the College.*"

To this we might simply answer, as we did some time ago when the same objection was sluringly made against the faculty of the College, that this is the mode of examination of many other Veterinary institutions in Europe, and of all our Medical Colleges in America; but, besides, why should they not be reliable? We do not make the faculty of these schools the insult to suppose that, because they are the teachers, they must necessarily be indulgent, and willing to grant their diplomas to unworthy candidates. If so, cannot examiners be supposed to act wrong also? A Board of Examiners is appointed to the English, and perhaps also to a few other European schools, but we have yet to learn that a diploma is not as fully appreciated by the public, because it has

not been granted from a Board of Examiners. We believe, and are sure, that Professor McEachran does also value the diploma from a French School to be as high as that of any of the English Colleges! But let us suppose that the presence of the names of the Board of Examiners would give more value to a diploma, we will ask *where* and *how* in this country can an *outside and impartial Board, unconnected with the College*, be selected. Have we a sufficient number of educated Veterinarians to fill up the position, who would be willing to do it—yes, who could fill it? We have no hesitancy to say no. To be examiners, means to be thoroughly acquainted with the subject to examine upon, to be posted with its last advancement, discoveries, etc. And have we amongst us, with the exception of those who are engaged in teaching (and these in their specialties), members of the profession who do not feel themselves somewhat *rusty* on Anatomy, on Physiology, on Therapeutics, etc. What, then, have we to do but fall back on the recent graduates, and are they, properly speaking, *unconnected* with the College; or on outside practitioners?

What was the position of the Montreal Veterinary College at their last meeting? One of their examiners, at least, was a graduate of the School, and another, whose professional standing ought to have been an objection to its appointment, and whose name, I fear, on the diploma of that excellent institution, can be no great honor to the document.

Under this present condition, what is to be done? We would suggest that the oral examination be made public; let all the Professors of the different departments of a school meet together, and let the candidate pass his examination in front of the whole faculty; yes, in a room where all the students to be examined will be allowed to be present. This would do away with the possibility of prejudice or preconceived decision on the part of the teachers, while it would give the candidate the comfort and the confidence that he would already have had during the course. It would be but a repetition of the weekly recitations or *quizzes* which he would have had during his course of studies; merely a more severe trial; but he would know that his examination, though severe, would be carried on by those with whom he was acquainted, and whose mode of questions he was familiar with.

Of the written examination we have nothing to say—thesis, we are satisfied, is merely a matter of form for many. We believe the proper way to be, to give the student questions on the different branches and let him write upon them.

The practical examination is carried along all the year round at the attendance to hospital practice and to the free clinics.

We have received other communications relating to the subject of Veterinary Education, which will be printed in our next.

PRELIMINARY EDUCATION.

The necessity of the steps discussed by the Veterinary Schools of this continent, relating specially to a preliminary examination before matriculating to enter a school, is well illustrated by the letter which we publish to-day under the heading "Knocking at the Wrong Door." The manner in which the letter is written, its style, and all its orthography, show enough how unfit the applicant is for the honorable degree he seems so anxious to obtain. This letter was directed to the Principal of the Montreal Veterinary College—how mistaken the applicant was? And it is not the first one which has been brought to our notice; our position at the American Veterinary College has been the means of receiving many, similar to that one, and we publish it to-day to show how wrong and ignorant people, generally speaking, are, of the requirements for veterinary education. Rather than thinking to enter a grand profession like ours, the ambitious candidate who *wont stand fore the meanes*, had better turn his attention to something else which will not require *three difrent schools from difernt graduats*.

Let all schools on the continent establish the requirements already adopted in the United States, and ignorant people will soon learn that before attempting to be honored with the trust of caring for our domestic animals they must take advantage of one of the greatest institutions of our country, viz.: *free public preliminary education*.

CASTRATION OF CRIPTORCHIDS.

The Veterinary journal brings us in his advertising columns that of Prof. (?) T. C. Miles, who for some time back has been trying to bring himself to the notice of the American people for what he calls *his method* of operating on Rigling. We are somewhat surprised at the reading of the certificates and letters which the Prof. (?) published, some of which, emanating from American veterinary authorities, stated that to them the

operation is a new one. The operation is by no means a new discovery, as mention of it is made in many French works, amongst the more recent we will name that of N. Serres, of the School of Toulouse.

We have not seen Mr. Mills operate, and though his success may have been unparalleled in the archives of veterinary operative surgery, from the description which is given in one of his certificates we feel satisfied that there is, after all, no discovery in it, but merely a series of *good luck*, as all practitioners may come across in their practice, when called to perform the operation of castration.

For the benefit of our readers we give, further, the *modus operandi* of the operation, without offering any reward for a better mode of castration. Some *variations* may exist between it and that of Mr. Mills, but the general *modus operandi*, as far as we can understand, is the same.

LIVED TOO LONG.

Thanks to the kindness of one of our correspondents, Mr. Gadsden, we are able to present our readers two extracts from Philadelphia papers relating to the closing of the so-called Philadelphia Veterinary College, with the arrest, trial and conviction of Robert McClure. Incorporated in 1866 by the Legislature of Pennsylvania, this College could, no doubt, have the opportunities to succeed. But why did it fail? We have no hesitancy in stating that from our observation we are satisfied that the failure can be attributed to two causes, which will always produce the same result. The first is, that the school was established with a pecuniary object in view; and the second, that the leading members of the school were unfit for the position they were trusted with. As a pecuniary point of view, it could not succeed, as all those who are engaged in that special work well know, that there is no millions in it. As being unfit for the position, we hold that to be able to teach, to understand the requirements of a class, to infuse to others rules of conduct for life, one must have been drilled himself in the same way; he must have obtained the title to his position through that same mill. Certainly Robert McClure, the unqualified Veterinary practitioner, did not possess those requirements.

ABSTRACTS FROM FOREIGN JOURNALS.

BY A. LIAUTARD, M. D. V. S.

LESIONS OF THE BRAIN AND OF THE CARDIAL GANGLIONS IN
RABIES.

A woman of thirty-two years, had her lip bitten by a dog, on the 9th of July, 1875, and she died on the 23d of September, after 2 days and half, from the eruption of the disease. On examining the nervous centres the following lesions were found: some of the cells of the medulla oblongata were cloudy, and their outlines uncertain. In the interstitial tissue of the cerebrum, great quantities of white corpuscles in the perivascular sheaths or in their neighborhood. Some of these corpuscles were situated in the pericellular spaces, and even in the protoplasm of the cells. An interesting lesion consisted in the existence of a shying substance, strongly refracting, collected, principally, in the perivascular spaces, and also in the superficial layers of the cerebral hemispheres. This substance was, here and there, deposited round the blood vessels in such quantity that these seemed to be strangulated or obliterated. In other places, it seemed to be regularly laid round the blood vessels so as to represent an epithelium. Resisting to the action of coloring substances, it remains insoluble in acids and alkalines.

In the ganglions of the heart there was thickening of the endothelium lining the sheaths of the nervous cells; and inside of the sheaths and in the interstitial tissue round elements of the size of a white globule. The nervous cells were cloudy, an appearance which concealed the nuclei more or less. In every part the nervous cells did not fill their respective sheaths, but had an empty space between them. (*Annales de Bruxelles*).

TRICHINIA SPIRALIS OBSERVED ON A DOG.

The animal was a young dog, 10 months old, picked up in the streets of Turin, and kept for experiment. He accidentally died in September.

On examination of the muscles of the tongue and of the posterior region of the thigh, a large number of trichiniæ encysted amongst the muscular fibres were found.

A trichinia, removed from its envelop, was placed under the microscope, in a weak solution of common salt, leaving it all its liberty of motion. At the surrounding temperature (23 degrees C), motions were limited; at a heat of 35 degrees to 45 degrees C. they increased violently, to stop entirely at 46 degrees. The heat was raised one degree more, and then gradually lowered to 35 degrees, and weak motions returned from 42 degrees. By a new increase of heat from 35 degrees to 40 degrees motions of elongation and contraction of the whole body were soon visible, but less marked than in the first experiment. They diminished at 42 degrees, and then ceased completely at 44 degrees.

In another experiment the author did not observed the death of the free trichiniæ only at 48 degrees C.

Observing afterwards upon an encysted trichinia, the motions ceased at 44 degrees, and reappeared but weakly at 30 degrees. The cyst being torn and the trichinia free, the motions showed themselves again, disappeared at 45 degrees.

In another experiment they stopped at 44 degrees. In conclusion the author says that a heat of 48 to 50 degrees will kill the muscular trichinia. (*Archives Vétérinaires.*)

CONTRIBUTION TO THE STUDY OF THE EXPERIMENTAL AND COMPARATIVE PATHOLOGY OF GLANDERS.

The author observes that the spontaneous production of the virus of glanders is yet to be proven. The transmission of the disease takes place by contagion; but it is not necessary, according to him, that the virus deposited upon the skin or the mucous membrane, produce on it a local lesion, starting point of a generalization. Most of the time the disease is due to an infectious miasma in suspension in the air which, penetrating into the lungs, determine a primitive poisoning of the blood with specific secondary products, or a primitive localization in the lungs followed by a general infection. Autopsies of horses prove this: in some ulcerations of the nasal fossæ and cutaneous lesions are missing, while in others lesions are found in the larynx and in the lungs. Consequently this virus is at the same time fixed and volatile. It is not true that it always affects the nasal mucous; out of 52 post-mortems of glanders and farcy, 5 times the nose was found free from lesions. Still this is the seat of predilection for these lesions, whatever may have been the mode of infection of the animal.

The author made 2 inoculations of virus of equine glanders, one upon a rabbit (on the ears), the other upon a goat (injection in the peritoneum). In both cases glanderous eruption took place upon the nasal mucous, evidently metastatic in origin. This may explain those cases to which, weeks and months of incubation were attributed, and in which the disease existed a long time, in a latent form, the lesions being deeply situated. Horses, with all appearances of health, may infect others through atmospheric air; and these for a long time, may present nothing of particular, until nasal ulcerations, cutaneous lesions and those of the glands would appear. These are the so-called spontaneous cases. Clinical observation confirms these experimental pathological facts: Bagge, out of 107 horses destroyed as affected or suspected of glanders, 10 had marked lesions of the nose, 13 had lesions scarcely visible, 53 pulmonary nodosities and ulcerations of the respiratory canal except the nose, 31 presented nothing.

According to the author, it is impossible to establish a point of identity between glanders and tuberculous disease: inoculation always gave negative results, and the nodosity of glanders differs much from the miliary tubercle. This has a lymphoid bloodless structure; the other is often vascular, and is composed of leucocytes, generally with large cells. By inoculation glanders is easily distinguished from affections to which it is identified and placed on a like nature, and its specificity is positively established.

Then the author speaks of the transmission of glanders to other animals, and especially the rabbit, sheep and the goat. The two first, like man, are very susceptible to it, and may spontaneously be infected by sojourning in stables occupied by glandered or farcinous horses. It is not so with the goat. The dog, on the contrary, is not predisposed to contract the disease; after inoculation, generally, only a local affection is exhibited. In one case, Nordstrom saw a dog contract the disease after eating the meat of glandered horses. In cats the disease shows itself in two ways. It has been also observed in wolves, in lions and in the mice and guinea pigs. According to Spinola, pigs are susceptible to contract the disease, but, as in cattle, inoculations (Gerlach and Stiffen) have not produced general infection. (*Annales de Bruxelles*).

COLOTOMY IN THE HORSE.

Mr. Felizet has succeeded in extracting from the floating colon a calculus of the size of a child's head, through an incision made in the

flank. This operation, remarkable by its boldness and specially by the result following it, must encourage the practitioners to perform it in similar cases. It proves, also, that the dangers of traumatic peritonitis are not necessarily always an objection to the attempt for relief.

These are the principal points of the operation: animal cast on the left side, right posterior leg secured extended backwards, longitudinal incision through the skin of the flank, tearing of the subcutaneous muscular layer, careful incision of the peritoneum, introduction of one hand, flat ways, to prevent the exit of the intestines, introduction of the other in the rectum to grasp and push the tumor through the opening, its extraction by incision of the coats of the intestine, suture of that organ well cleaned, and then carefully pushed back in the abdomen, suture of the fleshy and cutaneous edges of the wound. Phlebotomy, light mash, gruels, laxative and opiates. Radical cure after 15 days. (*Journal de Zootechnie*).

But a short time ago, we had the opportunity to perform a similar operation on a large bloodhound dog, in which an enormous mass of hardened fecal matter was producing serious complications accompanying an obstinate constipation of two weeks' standing. The animal died the same day from the shock of the operation. Mr. Felizet was more fortunate as he relates two similar cases which recovered without difficulty. (ED.)

GASES IN THE STOMACHS OF RUMINANTS.

Mons. Reiset has recently been investigating the nature of the gases found in the stomachs of cows and other ruminants that had become "blasted" from over-feeding on green clover and similar foods. Gas present in the rumen of a cow that died scarcely two hours after access to a clover field, was found to consist of 74.30 per cent. carbonic acid, 23.46 per cent. carburetted hydrogen, and 2.21 per cent. nitrogen. Neither oxygen nor sulphuretted hydrogen could be traced. In the case of a "blasted" sheep, also, 76 per cent. of carbonic acid was found. From these observations, Mons. Reiset is led to suggest the employment of alkaline bodies for remedies, amongst which he specially recommends ordinary burnt magnesia. (*Veterinary Journal*.)

BITES OF A RABID DONKEY TO A CHILD. DEATH OF THE ANIMAL.

During the incubative stage of hydrophobia, a donkey bit a child. At the suggestion of Mr. Laguerriere, the wound was not cauterized,

and the child escaped. The donkey died. From the principle that a rabid animal can, during the incubative stage of the disease, communicate it though it may present all the appearances of health, the author recommends the cauterization after the bite of any *carnivorous*, no matter how slight. At the autopsy, lesions of the lumbar and sacral nerves were found, viz., plastic organization of serosity increasing the size, and changing the coloration of the nerves. These lesions were also found in dogs who had died at the last period of the disease. (*Archives Veter.*)

INTERESTING POST MORTEM.

A horse died from hemorrhage following rupture of the liver. At the autopsy an enormous clot was found in the abdomen; on the posterior face of the liver a laceration near the *veina portæ*; and all round, a mass of brownish, very small spots, having in its centre a long, filiform, stiff, hard body which proved to be the barbs of barley seed. (*Archives Veterin.*)

TRANSLATIONS.

BY DR. OSLER, OF MCGILL UNIVERSITY AND MONTREAL VETERINARY COLLEGE.

DIPHThERIA IN THE CALF.

Dammann records the history of an exceedingly interesting epidemic of this disease in calves—a new affection in these animals, and one capable of transmission to man. The author holds that the malignant catarrhal fever of cattle is not to be regarded as diphtheria.

The disease broke out in the spring of 1875, among the calves in the village of Ludwigsburg, and proved fatal in nearly every instance. In the spring of 1876, the disease having broken out again, the Inspector of the place consulted Prof. Dammann on the subject, and he, suspecting its nature, requested that the first animal that died should be sent to him for dissection. The opportunity soon arrived by the death of a three weeks' old calf; when, on examination, it was found that the affection was true diphtheria. A thick, grayish-yellow membrane extended over the anterior part of the hard palate, and lined the mucous membrane in the region of the posterior nares, being prolonged into these cavities and their sinuses. A similar membrane covered the inside of the cheeks. On removal, the mucous membrane was found to be

destroyed by the infiltration. The larynx and windpipe were not implicated. The lungs were edematous and contained, especially in the anterior lobes, a number of purulent deposits. On the skin of the clefts of the hoofs of both front feet, a thick, diphtheric membrane existed.

On visiting the place, five calves were found affected—two in the early stage, and two others seriously ill, while the death of the fifth was hourly expected. All were feverish, depressed and feeble, appearing stiff in their limbs, and disinclined to stand up. Saliva flowed from the mouth, *and there was loss of appetite. The cheeks of several were swollen.* Cough was an occasional symptom. Two of the calves were sent to Eldena in order that the course of the disease might be studied, and its contagiousness tested. They were put in a pen, and with them was placed a three days' old calf. One of the above animals was not put under treatment. It was weak, salivated, had a yellowish discharge from the nose, a feeble cough, and copious diarrhœa. On the back of the tongue a thick, yellowish layer could be seen, which, subsequently, extended towards the fauces. Under the gradual increase of these symptoms the animal died on the sixth day. At the post-mortem there were found diphtheritic colitis, scattered areas of consolidation (some of which were purulent,) in both lungs, and extensive diphtheritic patches in the throat and mouth; on the latter cavity affecting chiefly the tongue, the back part of which was covered with a thick membrane, beneath which the mucous and muscular tissue were to a certain depth destroyed.

The other calf was treated with salicytic acid (30–40 grs. daily), and recovered in about three weeks. The attack did not appear so severe as in the first calf. Five days after being placed in the pen with the diseased animals, the healthy calf showed signs of the malady, and had the local and general symptoms as above described; the membranous patches being well marked. It was also treated with salicytic acid, and recovered in five weeks. In all the cases numerous bacteria and micrococci were found in the membrane, and in the discharges from the nose and bowels.

Severe cases proved fatal in four to five days; in others the duration of the disease extended over three weeks, and in these the onset of pneumonia frequently determined the fatal result. In none of the cases observed was there any affection of the kidneys. Very young animals alone appear susceptible to the disease; no instance was met with in half-grown or adult beasts. In both epidemics at Ludwigsburg almost every calf attacked died. The treatment recommended consists in syringing out the mouth and throat with a solution of salicytic acid,

giving the same internally, and, when possible, removing the false membrane, and penciling the base with two per cent. carbolic acid. The contagious nature of the affection was proved by the fact of the healthy calf taking the disease when placed with the others. Experiments further demonstrated that, by placing bits of diphtheritic membrane either in the nose or beneath the skin, the disease could be produced in lambs and rabbits—results similar to those obtained with the false membrane from man. An exceedingly interesting fact is the probable transmissibility of the diphtheria of calves to man. The Inspector above referred to, who had charge of the diseased animals, sickened with an affection similar in all respects to ordinary diphtheria; the servant also suffered from sore throat, swelling of the neck, etc., but not so severely. These were the only individuals who were brought in contact with the calves.

A beautiful colored plate accompanies the paper, showing the yellowish membrane upon the tongue, palate and cheeks. (*Condensed from Deutsch Geitschrift f. Thiermedizin, Bd. 111, Hfts. 1 and 2.*)

ON THE DURATION OF LIFE IN ENCAPSULED TRICHINIÆ.

BY PROF. DAMMANN, OF ELDENA.

Many observations have been published on this subject in the last 16 years. Thus Groth described a case in Altona in which it was probable that the migration of the parasites had taken place 7 or 8 years previously, and it was proved experimentally that the worms still lived. In a case of Tungels, Virchow thought that the infection had taken place 13 years before, and yet the parasites were capable of development. Still later Klopsch published the case of a woman in whom he believed the trichiniæ had remained alive in the muscles for 24 years. In all these cases no positive proof of the age of the trichiniæ could be obtained; for, being found accidentally post-mortem or during an operation, it was only on the ground that the individuals had had a peculiar disease 8, 13 or 24 years previously, that the migration was supposed to have taken place at that time.

The author relates an instance of long encapsuled life of trichiniæ in a pig, the time of their migration being accurately known. The animal was fed with flesh containing trichiniæ in November, 1864, and in February, 1865, when seven months old, sent to one of the experimental stalls of the Institute of Animal Physiology in Eldena, in which it has

remained isolated ever since, being taken out only when portions of flesh were wanted for examination. No subsequent feeding with trichiniæ occurred, and an accidental infection by rats could be, with tolerable certainty, excluded. Rats were never seen in the stall, which has an asphalt floor and well plastered walls; the presence of cats kept them at a distance; moreover, the author had never found trichiniæ in a large number of rats examined.

On the 3d of February, 1875, and the 12th of February, 1876, portions of muscle were excised from the region of the shoulder, and on both occasions microscopical examination showed the presence of encapsulated trichiniæ. Rupturing a capsule with a needle gave exit to a worm, which, on slightly warming the slide, executed lively movements. Portions of the muscle last excised were administered to two rabbits, one of which already had old trichiniæ in its muscles. Eighteen days after, the muscles of both animals were crowded with young, recently-migrated parasites. Thus the trichiniæ in this pig had, for somewhat over 11 years, retained their vitality and power of development, and the supposition regarding the length of life in encapsulated worms is, by this experiment, satisfactorily confirmed.

A point of some interest is that in spite of the lengthened sojourn of the worms in the muscles, they were not surrounded by true calcareous sheaths, but possessed somewhat opaque capsules, scattered over with dark granules, through which the outlines and general structure of the worms could be plainly seen. Complete calcification of trichiniæ capsules has not yet been found in pigs, which was believed to depend upon the fact that the animals were killed before the process supervened. Several years, at least, are required, but in this instance 11 did not suffice. The food of the animal consisted chiefly of peas and potatoes. The author raises the question whether it is not a peculiarity in the pig that entire calcification of the capsules does not, as a rule, occur. Measurements proved that no appreciable change in the density of the capsules had taken place in the year between the two last excisions. (*Deutsch Zeitschr. f. Thiermedizin*, Bd. 111, Hfts. 1 and 2.)

REPORT OF CASES.

CASES TO SERVE TO THE HISTORY OF FRACTURES.

BY A. LIAUTARD, M. D. V. S.

[Continued from Page 65.]

C. Dislocation of Patella—Fracture of Femur—Dislocation and False Articulation—Destroyed.

On the 10th of July, 1876, I was requested to visit a horse lame for the last two months; he was in the country, some thirty miles from New York, and was found one morning in the same condition as at the time of my visit. A practitioner called on the day of the injury, prescribed frictions of tinct. of iodine over the stifle joint, where he located the lameness.

When I saw him his condition was as follows: his left hind leg is stretched backward, resting on the front of the toe, without flexibility at the stifle joint or at the hock. The animal in walking drags his toe along, carries his leg in abduction, and by a jumping movement on the right leg would then carry the left extremity forward. There is a slight atrophy of the gluteal muscles. The ischio-tibialis externus is projecting outward and on the outside of the stifle, the patella is readily felt surrounded by plastic exudation, and having but a very limited facility for motion. By seizing the entire mass with the hand a slight up and down motion can be produced with the patella. The general condition of the patient is otherwise healthy.

Diagnosis—Dislocation of the patella with adhesions

Prognosis—Doubtful. *Treatment*—On that day the animal was cast with some difficulty, and after much struggling he was partly brought under the influence of ether and chloroform mixed. I say partly, as having no assistant, and the people around being much timid; between giving the anesthetic and trying to reduce the dislocation, I was unable to produce perfect relaxation, and after two hours of hard efforts I gave it up.

However, at one time of the operation, and when the anesthesiæ was probably greater, I had perceived that the patella was more movable, that I could partly flex the femoro-tibial joint; and from this I concluded that there was indication for another attempt. I left

directions to have the stifle well fomented with hot water, and well manipulated two or three times a day, and reported to my employer suggesting the propriety to have the horse brought to the College for treatment.

On the 26th, he entered the Hospital, pretty much in the same condition as when I saw him on the 10th. Two days later, kindly assisted by Professor Robertson, Mr. Hopkins and some students of the College, the animal was again cast, fully etherized; but though we worked well for over an hour and a half not the slightest improvement on my first attempt was noticeable—indeed, I thought it was not as good. The animal was allowed to get up, and the owner, informed of our failure, decided to have him destroyed, which was done on the 18th of March, a little over three months after he received the first injury.

On that day there was no change in the general conditions—action was the same—the upper extremity of the femur was more projecting, which is attributed to the excessive atrophy of the muscles.

Post-Mortem Appearances. Careful dissection of the muscles of that region shows that they are healthy, with the exception of the biceps femoris, which has undergone fatty degeneration, it seems retracted and holds the patella outward; the ligaments of the stifle joints are all in statu except the internal band of the anterior capsular, which is entirely torn; the articular surface of the femur shows that the cartilage on the inner border of the trochleæ is thinned and congested. Had the thicker portion of the biceps femoris been divided, probably the reduction could have been obtained.

But that was not the only injury to be found. On looking further for the condition of the gluteal region, there were found lesions of the hip joint proper, which, undoubtedly went back to the time of the first injury.

The whole mass of the glutei muscles is atrophied, the deep one specially; the gluteus parvus is surrounded by a thick, plastic effusion. The inferior and posterior muscles of the crural region, obturator externus, Pyriformis, Geminii, small coxo femoral, square cruralis, cannot be dissected, they being also engorged, thickened with the same effusion, more or less organized.

Through this dense mass, a thick membrane, kind of capsular ligament, is found and cut through; this uncovers the head of the femur, which is diseased, ulcerated upon its rim, with thin, ulcerated cartilage, but also with a fracture! extending from upwards downwards in a straight line, parallel to the long axis of the bone. The sides of this

fracture on the femur is flat, smooth here and there, granulating in some places. Where is the other piece of the bone? All that can be found is a small bony piece, imbedded with the thickened tissue surrounding the joints. The cavity of the acetabulum is almost destroyed; instead of it, its surface is smooth, corresponding in shape to that of the femur, at the upper part of which is the attachment of the capsular ligament already referred to. The inter articular ligaments could not be dissected.

In other words, there was a fracture of the head of the femur with dislocation at the hip joint, and commencement of ankylosis through the bony organization round the joints, which would have been complete had the animal lived longer.

D. Comminuted Fracture of Pelvis—Internal Hemorrhage—Death.

This was a bay horse, about sixteen years old; he was driven about two miles after leaving his stable, and stopped in the middle of the street. While standing his mate slipped and fell, but in so doing threw him down; being unable to get up he was brought to the Veterinary College in an ambulance some four hours after.

Condition on admission. Pulse weak, 48; respiration labored, numbering 22; while down he groans and strains to rise; left eye (upper one) dilated; cheeks flabby during respiration. The animal attempting to raise himself a sling was passed under him, and he was assisted to his feet. It was found then that the left hind leg was powerless; the anterior external angle of the ilium was much lower and farther from the median line than its fellow. Upon rectal examination the sacro-iliac articulation was found to be ruptured, a fracture extending the entire length of the pubic symphysis with a part running from the acetabulum to the obturator foramen.

While standing for examination the animal trembled violently, the pulse became more rapid and weak, the pupils more dilated, and being lowered down he died within ten minutes afterwards.

Post-Mortem.—The tissues in the internal femoral region were filled with blood; the pelvic cavity and its contents were surrounded with clots also; the floor of the pelvis being broken in about twenty pieces, with the main points already given above.

VARIETIES AND NEWS.

KNOCKING AT THE WRONG DOOR.

The following extraordinary letter, received by the Principal of the Montreal Veterinary College explains itself. For decency's sake we omit the writer's name :

Fostoria, O. March the 19th, 1877
Montreal Canada

Dr Sr.

i thought i would drop you a few lines in regards To Vetrinery practis i have Ben docktern horses for the Last two years and would like your tearms and know how much it would cost mee To get a diploma i could come and stay a short time But probley could not stay the Lench of time required but Probley you could give me some Sadsfacion by having the meanes now i cane make as much money without one as with it but i would like To go in some large Citey and Doe buysness i am red up on the horse purty faire but i ame a married mane and cant aford to spent much time in College but have the money It i cane get a diploma In a short time you cane right mee and Let mee know your turmes please anser This by return mail i have taken three difrent schools from difernt graduats From diferent Collages and one of them mean was From your College i have Ben with him six months—

Please answer and give mee your terms i want one and wont stand fore the meanes To get it Yours truley

CASTRATION OF CRIPTORCHID HORSES.

By Criptorchids are understood the animals in which one or the two testicles have remained in the abdominal cavity, or have not passed through the inguinal canal. This anomaly is known also as monorchid, enorchid and, wrongly, anorchid, as the testicles are only concealed, but not missing.

To the surgical point of view instances of criptorchids in solipeds are furnished by Mr. N. Vanhaelst, Belgian Veterinarian, in 1846; Goubaux in 1847; Marrel in 1847; Brogniz in 1845, and by many others.

Though the condition of criptorchidy may be divided into four positions, the two following ones are generally admitted: In the first,

the testicle is floating in the abdominal cavity ; in the second, it is partly engaged in the inguinal canal.

This distinction is not without importance ; in the first case, the organs are floating in the abdomen, suspended by a fold of the peritoneum ; they are soft, small, of a modified texture, and the produce of their secretion is free from spermatozoids ; in the second, the testicle possesses all the conditions of those of the active animal, and, besides, the position of the testicles will also be of a great importance, as it will decide of the possibility and of the prognosis of the operation.

Mr. Vanhaelst describes the operation as follows: The animal being properly secured, upon the lateral parts of the scrotum, at the point, where, in normal condition, the testicle would be found, a longitudinal incision is made, long enough to allow the introduction of the hand ; after that incision, the layer of yellow elastic tissue following, and situated under the skin, is also divided ; then the hand is introduced into the opening, the fingers being brought together, as when the hand is introduced into the rectum or the vagina ; they are pushed towards the inguinal ring, lacerating the cellular tissue. Reaching the ring, the index is stretched and passed between the testicle and the canal proper, detached from its attachments, and by a slow but steady pulling is brought outside of the sac ; a ligature is passed around the cord, which is firmly secured ; the edges of the skin are then brought together, and the animal allowed to get up.

After the fourth day the ligatures of the skin are cut off ; that which was applied upon the cord soon drops off carrying along the testicle, the suppuration is established, and the case progresses as usual. Instead of ligature, if possible and if the cord allows it, an ordinary clam is applied, and thus is the operation transformed as one on a normal animal.

Gourdon mentions another mode, which consists to look for the testicle into the abdomen by an incision made in front of the inguinal ring, on the sides of the sheath, and including all the abdominal walls ; but too dangerous in its sequelae it would scarcely be put in practice, except in case of experiment.

At last the *Recueil de Médecine Veterinaire*, of July, 1874, published a description of the *modus operandi* of a Mr. Parret, who had made a specialty of the operation. The principal variety of the manipulations is that when the testicle is not found in the inguinal canal, the operator, whose hands have been first carefully oiled, pushes through the superior

ring, lacerating the peritoneum, and, going into the abdominal cavity, grabs the testicle, brings it outwards, and removes it as usual.

The mortality in said operation is said to be an average of 10 per 100.

BOGUS DIPLOMA MILL.

[*From the Sunday Dispatch, Philadelphia, April 22, 1877.*]

The Philadelphia Veterinary College, of No. 903 Filbert Street, has bursted like a beautiful bubble, and the provost, secretary, treasurer and faculty, represented in the one person of Robert McClure, horse doctor, are now safely stowed away in a little cell in the county prison. The police authorities have suspected for some time that this "institution" was not granting diplomas "on the square," but on the plan of Dr. Buchanan, of the Pine Street Medical College, and so a scheme was incubated to get down to it. A young man named Francis Standin some time ago opened a correspondence with McClure, with a view to the purchase of a diploma, that he might blossom into a full-fledged horse, mule, and—if the occasion required—cow doctor. He offered to transfer three shares of the Green and Coates Streets Railway Company as the price of the "sheepskin," which hardly met the approval of McClure. He wanted cash.

Standin notified the detectives of what he was doing, and wrote to McClure that he would be at his office yesterday with the money, and would expect to receive the diploma. The price hit upon was one hundred and twenty dollars. The money was marked, and the young man saw McClure, who delivered the diploma, which was filled out, sealed and signed with the names of several horse doctors. A few minutes after a Central Station detective walked in and arrested the diploma man. In the office were found several other sheepskins already filled out with the names of those for whom they were intended. One was marked with the price—one hundred dollars. A batch of correspondence was found in the office, showing that McClure had carried on a lucrative business. He was arraigned before Magistrate Pole, at the Central Station, yesterday afternoon, and, upon the strength of the above evidence, was required to give three thousand dollars bail for another examination on Tuesday. He subsequently acknowledged that the college is a bogus concern; or, in other words, that he is the college.

THE HORSE DOCTOR'S BOGUS DIPLOMAS.

[*From the Times of Philadelphia.*]

The final hearing of Robert McClure, charged with issuing bogus diplomas, was held yesterday at the Central. Dr. Alfred L. Elwyn testified that his signatures to the diplomas was a forgery. He said that about seventeen or eighteen years ago he was President of the Philadelphia Veterinary College, but has had nothing to do with it since 1862, and did not know if it was still in operation. He had never authorized any person to sign his name.

Thomas C. Davis, of the firm of Spangler & Davis, printers, recognized the diplomas as having been printed at their establishment, and identified McClure as the man who had ordered them.

J. H. Warren, professor and teacher of penmanship at Pierce's College, at Tenth and Chestnut Streets, testified that he had written the signatures on the diplomas by McClure's authority. He did not remember if an original was before him. The Magistrate held McClure in \$800 bail for procuring money under false pretences, in \$1,000 for selling medical diplomas, and in \$1,200 for uttering and publishing a forged instrument of writing, making in all \$3,000. Three of the diplomas were used as evidence in court—one made out in the name of John Wesley, one in the name of A. H. Pope, and the third in the name of Francis Standen. The latter person had made the complaint. The diplomas had the forged signatures of A. L. Elwyn, as president; George W. Closs, secretary; Robert McClure, M. D., and John H. Gould, M. D.

NEW CURE FOR HYDROPHOBIA.

Take one and one-half ounce of elecampane root bruised, put in a half pint of milk, reduced to one-half by boiling; then take all at one dose in the morning, fasting until afternoon, or at least a very light diet after several hours have elapsed. The second dose the same as the first, except take two ounces of the root. Third dose same as the last, to be taken every other day. Three doses are all that is needed, *and there need be no fear* (that you will escape). This has been used for over forty years in and around Philadelphia, etc., etc.

We hope our learned colleagues of Alfort will experiment with this as they did with the xanthium spinosum, and show the folly of the operation.

HOW NERVES END IN TENDON.

The termination of nerves in muscle has been carefully studied by Dr. Beale, F. R. S., and also by certain French and German observers. Their termination in tendon is a subject of more novelty. It seems, according to a notice in the *Academy* (December 9), that the tendon of the sterno-radialis muscle in the frog receives a nerve trunk of some size near its point of insertion; the fibres form a network and end in the tendon. By employing special methods of examination, Rollet has succeeded in demonstrating that the ultimate fibres terminate in structures, which he terms "nerve flakes," and which present many points of similarity to the motor end-plates in striated muscle. Their functional significance is doubtful. No reflex movement can be produced by stimulating the tendon; hence Rollet concludes that the nerve must consist of centrifugal fibres.—*Monthly Microscopical Journal*.

COMMUNICATIONS RECEIVED.

G. Zeuner, Long Island, N. Y.; Dr. Osler, Montreal, Can.; M. Stalker, Ames, Iowa; E. F. Thayer, Boston; D. McEachran, Montreal, Can.; J. S. Duncan, Goderich, Ont.; E. Mink, Rochester; A. Smith, Toronto; A. Large, Brooklyn, N. Y.

EXCHANGES.

Medical Record, N. Y.; Scientific Farmer, Boston; Western Agriculturist, Quincy, Ill.; American Agriculturist, N. Y.; Country Gentleman, N. Y.; Chicago Field, Chicago; Hospital Gazette, N. Y.

SPECIMENS.

SENT FOR THE MUSEUM OF THE AMERICAN VETERINARY COLLEGE.

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| 69. | Tenia of the Dog..... | J. F. Winchester, B. S. |
| 70. | Fractured Pelvis..... | J. C. Force. |
| 71. | Milk Molar Teeth Shed at 3 years old..... | W. Wray. |
| 72. | Small Turtle. | |
| 73. | Preparations of Hyoid Apparatus..... | S. S. Field. |
| 74. | Suppurative Arthritis of Fetlock Joint.... | W. Blanchard, through
C. H. Peabody, D. V. S. |

AMERICAN VETERINARY REVIEW,

JULY, 1877.

ORIGINAL ARTICLES.

VETERINARY EDUCATION.

By D. McEACHRAN, F. R. C. V. S., V. S. EDINBURGH,

PRINCIPAL OF THE MONTREAL VETERINARY COLLEGE.

[*Continued from Page 92.*]

Before concluding my remarks on the educational work done in this profession in America, justice demands at least a passing notice of valuable work done by medical gentlemen and others, not, strictly speaking, members of the Veterinary profession, who have done much towards advancing the science by pathological investigations, writing and lecturing. Chief amongst this class who have come under my notice are Professor Osler, M. D., of Montreal, who takes a live interest in pathological investigations in connection with the Montreal Veterinary College, and who enters heartily into everything tending to promote the best interests of the science, as will be seen by his valuable contributions to Veterinary journals, and translations of interesting articles from the German journals for the columns of the REVIEW, and Professor Noah Cressy, M. D., who has given himself almost entirely to Veterinary work, and who, as Veterinary Pathologist to the Connecticut State Board of Agriculture, by his lectures and annual reports of investigations, more especially in bovine pathology, has done a great deal to elevate the profession in the eyes of the people of that and other States. Doubtless there are others equally worthy of notice, with whom I am not acquainted.

With the knowledge of the state of Veterinary education, as set forth in the foregoing numbers, it will be seen that much yet remains to

be done, both in the United States and Canada, to place the teaching of this science in that state of efficiency which its importance demands.

What these steps should be, I think can only be determined by those most interested in this important question—the members of the profession, the teaching schools and the public. Owing to the large number of young men from the United States who annually enter our Canadian colleges, the interests of the profession in both countries are closely connected; and this being the case, nothing but hearty co-operation by the schools of both countries will ensure that progress in the interests of the profession which will lead to placing it in its legitimate position among the sciences.

The first step, therefore, to be taken is to get together a convention of the profession and of the professors of the colleges, and invite each State Board in America, and each Council of Agriculture in the Dominion, to send a delegate to watch the interests of the public—at which the profession in all its relations to the public would be freely discussed—and let us determine upon what educational standard is necessary.

It appears to me that much good would accrue to the profession by such a meeting, properly conducted.

This profession has too long been left in private hands and to private enterprise. If any department of education is deserving of Government support and Government supervision, this one is. Were it possible to estimate the annual loss to either country, owing to the neglect of so valuable an auxiliary to the agriculturist, or the damage done by uneducated quacks, or even by imperfectly educated men holding diplomas, it would arouse the most apathetic, and waken up our governing bodies to an active sense of their negligence. By all means, let the Governments of both countries take the Veterinary Colleges under their patronage, and instead of leaving them to struggle along, doing their best according to their means, and that means, in many cases, far from sufficient to meet even the ordinary expenses of the college, it can hardly be expected that the educational staffs can be as complete in numbers, or devote as much of their time to scientific investigation, as should be done in the interests of the profession and public. It is only occasionally, and under exceptionable circumstances, that men are to be found possessing sufficient enthusiasm to cause them to accept and persevere in positions of such responsibility, and requiring the amount of hard work and constant application incidental to the successful conducting of a Veterinary College.

It may not be known either to the public or profession, but it is a fact, that so far as the teaching is concerned it is anything but profitable, and, in too many instances, not only do those on whom the greatest responsibility devolves receive no remuneration, but if they are not out of pocket they are fortunate; and too often, instead of being encouraged in their good work, are exposed to the jealousy and ill will of those whose best interests such institutions must serve most.

While the present inefficiency of our Veterinary Schools is in some measure attributable to this cause, yet it is no excuse for those who undertake the positions of teachers of the science, not to take advantage of privileges at their disposal for raising the standard of the profession at least to a position of respectability.

In concluding these papers I sincerely hope that the true object in writing them will be credited to the writer, viz., a desire to bring about important improvements, for which he has long pleaded privately with those who had the power without the will to bring them about, and that the free discussion of the subject, which is likely to follow, will be productive of much good to all of us.

Already we have entered on a higher platform, two of the Colleges having added matriculation to their requirements, and the American Veterinary College has adopted a three-session course and a graded examination, as has been practiced for years at Montreal; and no doubt our friends at Toronto will follow the good example, and thus remove the last great obstacle to the progress of Veterinary Education in America, and place the members of this profession on this continent on a par with their European brethren.

RUSSIAN GOVERNMENT REGULATIONS

WITH RESPECT TO THE EXAMINATION OF VETERINARIANS.

(Printed under the direction of the Council of the Dorpat Veterinary Institution.)

BY D. McEACHRAN, F. R. C. V. S., V. S. EDINBURGH,

PRINCIPAL OF THE MONTREAL VETERINARY COLLEGE.

Apropos of the subject of Veterinary Education, the following translation* in a condensed form of the printed regulations of the

* I am indebted to Prof. Osler for translating the above.

Russian Government, received a short time ago from the Director of the Veterinary College at Dorpat, will prove interesting, as showing the thoroughness of the requirements for graduation in that country:

The degrees to be obtained by examination are—

(a) Veterinary Surgeon or Veterinarian.

(b) Master of Veterinary Medicine.

For the first, the candidate must undergo an examination in—

(1) Collateral Branches—Agricultural Science, Mineralogy, Botany, Zoology and Comparative Anatomy, Physics and Physical Geography, General and Medical Chemistry.

(2) In the principal branches—General Anatomy with Histology, Animal Physiology, External Conformation, Science of Breeding, Animal Hygiene, General Pathology, Pathological Anatomy and Pathological Histology, Pharmacology, Pharmacy, General Therapeutics, Special Pathology and Therapeutics (medicine), Contagious Diseases, Veterinary Jurisprudence, Theoretical Surgery, Obstetrics, Operative Surgery, Theory of Shoeing, Medical and Surgical Clinics, Works which are found in the "Veterinair Apotheke," and in Practical Horseshoeing.

Special regulations relate to the following:

(1) General Anatomy, with Histology.—The examination consists in the demonstration of one of the cavities of the body, and a perfect determination of the situation, together with the general and microscopic structure of the organs therein, the perforation and demonstration of the vessels and nerves of one extremity.

Three weeks are allowed for this—

(2) Pathological Anatomy—The candidate must perform a post-mortem examination, and prepare a written report of the same.

(3) Pharmacology—The candidate has two medicines to recognize, and must write out and prepare two recipes.

(4) Surgical Operations—Two operations must be performed, either upon the living subject or the cadaver.

(5) Practical Obstetrics—The performance of two obstetrical operations on the phantom, according to the most approved methods, together with an explanation of the cases which demand such operations.

(6) In the science of horseshoeing, the candidate must give evidence of capability of putting his theoretical knowledge into practice.

(7) The clinical examination consists in the treatment by the candidate, of a diseased animal in the surgical, and another in the medical department, and the furnishing by him of the clinical histories of the patients.

(8) Veterinary Jurisprudence—Holding an autopsy on a cadaver, according to this science, and composing a report upon the case.

Examination for Master of Veterinary Medicine.—Candidates must have already passed the preceding one. After an oral examination, the candidate must discuss, in writing, two subjects chosen by him. Four hours are allowed to each subject. If the preceding has been satisfactory, the candidate is permitted to hand in a thesis on some Veterinary subject. Each member of the Examining Board is allowed a month to look over this, and, if approved of, it is printed by the candidate, and 100 copies handed in. He then has to defend it publicly against three chosen opponents. If satisfactory, the Veterinary oath is administered.

AMES, IA., May 19th, 1877.

EDITORS VETERINARY REVIEW:

In looking over your issue for May, I was somewhat surprised to find my head in the hands of one Dr. McEachran, of Montreal, and still more surprised to find said McEachran employing it as a battering-ram to knock the foundation from under the Ontario Veterinary College. I suppose that even the irate Doctor will be willing to acknowledge that I have been in good professional hands this once, and that I am indirectly contributing largely to the advancement of Veterinary science by changing his little star from its present condition of second magnitude. Now, Mr. McEachran cannot know the Ontario Veterinary College as I do. *It will not fall.*

Mr. McE. says, referring to me, "being refused a short cut into the profession at the Montreal College, gained easy access at Toronto," &c. The facts in the case are, first, I never asked admittance to the Montreal College, and second, I was not refused. I did send a letter of inquiry to the Montreal College, and on the same day one to the Ontario College, and in due time received answers from both.

The gentleman has stated that my vacations here extended from the middle of December to the middle of March, and figures on this as the time I have devoted to study. These facts he gathers from my letter of inquiry. Either I have misstated the time in my letter, or the Doctor has made another of his characteristic *mistakes* (?). It should read from the middle of November till the middle of March, and I was afterwards granted permission to remain till such time as the session I was attend-

ing should close. He throws entirely out of the count the four years I had previously spent in college, including one year and a half in chemistry, the same time in botany, a few months in physiology and comparative anatomy, and all the time I spent in the American Veterinary College ; for he breathes himself out in this wise : “ *Nearly eleven weeks altogether in which to reach the high standard of perfection,*” &c.

What a fine lot of Returning Boards a stick like the Doctor would make ! If he were worked up, Canada’s lumber record would be unapproachable.

I went to the Ontario College before I decided to spend the winter there, and first satisfied myself that the institution was doing earnest work, and then joined the class without the subject of graduation being alluded to. I remained till the close of the term (April 5th), passed my examinations, and received my degree with eleven others who passed at the same time. Most of the members of the Examining Board were strangers to the class, and could not be accused of being actuated by feelings of friendship or favoritism. It is also presumable they were competent judges of their business. The task of running such a gauntlet without some knowledge of Veterinary science could only be equalled by passing a successful examination in the Montreal College. And *yet*, McEachran isn’t happy. I cordially second every effort that I believe to be an honest one for the elevation of the profession ; but I must confess that I look upon this as a personal attack on Professor Smith, for no other crime than being pre-eminently at the head of the Veterinary profession in Canada. This is unpardonable ingratitude towards Doctor Smith, who has been largely instrumental in making Dr. McEachran (though I can’t say it is a piece of mechanism that reflects a great deal of credit on Dr. S.)

Now, as the Doctor seems to have a genius for telling people what they should do, I trust he will enlighten the members of the profession on the question of professional courtesy, and impress upon us the necessity of recognizing the fact that one little cranium doesn’t contain all the wisdom of the world.

And I trust he will “take advantage of his vacation,” or some other early opportunity, to learn the fact that, if he expects to bring up the scattering numbers of his college to a level with the Ontario College roll, he should lay his foundation of better material than vituperations, and build his superstructure of more enduring material than scurrility.

Yours always,

M. STALKER.

VETERINARY EDUCATION IN ONTARIO.

BY J. T. DUNCAN, V. S.,

MEMBER OF THE EXAMINING BOARD FOR ONTARIO.



Up to the year 1861, no provision for Veterinary education existed in Canada. Our vast stock interests were virtually in the hands of empirics. The name "farrier," by which those who professed to follow the business were known, was a synonym for ignorance, brutality and drunkenness. So low was the business considered to be, that a well qualified Edinburgh graduate, on settling in this Province, refused absolutely to practice his profession, and went into another occupation.

In the short space of fifteen years this has all been changed. Now we find the name "farrier," and the quacks who hold it, generally relegated to obscurity. In every important centre of population, and in many rural districts, we see properly qualified Veterinary surgeons practicing—benefitting the district in which they are placed by the exercise of their superior knowledge, contributing largely to the prosperity of the country, and receiving the respect and esteem of their fellow citizens.

This desirable result has been brought about largely by the establishment and successful career of the Ontario Veterinary College.

To some of the members of the Board of Agriculture for Upper Canada (now the Province of Ontario) belongs the honor of originating the idea of the College. Being convinced of the paramount importance of Veterinary education to such a country as this, whose wealth consists largely in stock, the Board sent to the late Professor Dick, of Edinburgh, requesting him to recommend a gentleman thoroughly qualified both to practice and teach the science. Fortunately for Canada, Professor Dick selected Mr. A. Smith, V. S., of Ayrshire, Scotland. Largely to his commanding talents, extensive acquirements and almost unerring practical skill does Veterinary Science owe its high position in this country to-day.

Mr. Smith, accepting the offer made by the Board, proceeded to Canada, and, in 1861-62, delivered a short course of lectures to agricultural students. I am not aware that any of these students intended to become Veterinarians. But from the interest manifested through the country in the Veterinary lectures, it was deemed advisable at once to

organize an institution for the special purpose of imparting Veterinary education. This was done, in 1862, by the appointment of Professor Smith as Principal of the School, the various departments being filled by professors of ability, most of them being in connection with the medical colleges of Toronto. During the session of 1862-63, one or two young men attended with a view of graduating, but a large number of agricultural students availed themselves of the short course of six weeks' lectures, designed specially for them.

In 1864 a Board of Examiners was appointed, and in 1866 three young gentlemen, after undergoing a careful examination, were granted the Diploma of the Board of Agriculture. The brilliant reputation of Professor Smith, and the success of the graduates in practice, induced ever increasing numbers of young men to avail themselves of the advantages offered by this institution, till, in 1869, the accommodations were found inadequate. Up to this time the lectures had been delivered in Agricultural Hall, while the infirmary was at some distance. Now, however, Professor Smith erected a commodious college building, with infirmaries and dissecting-room attached, and the institution received its present designation, the "Ontario Veterinary College."

An extract from the official report of the Board of Agriculture, to the Government, for the year 1870, will show how the efforts of Professor Smith and his assistants, in the cause of Veterinary education, were appreciated at the time :

"The examiners expressed themselves highly satisfied with the standard of the examination and the answers received. They have the testimony of Dr. Beatty, of Cobourg, * * who attended the examinations on behalf of the Council, and is well qualified to give an opinion, that he has been much gratified at the proficiency exhibited by the students; that some of them passed a really brilliant examination, and displayed a knowledge of anatomy which would do credit to any medical school in the Province. In short, the Council is satisfied that the course of instruction given at this institution is a thoroughly practical and efficient one, and well adapted to prepare the students for the successful practice of the Veterinary art as a profession."

Flattering as had been the success of the institution as a *school*, its prosperity as a college was still greater. Its reputation for imparting sound practical as well as theoretical training spread in every direction, causing an increased attendance of students to such an extent as to necessitate still further enlargement of the premises, which was done last year. The College buildings are now large and convenient, and furnished with every necessary for the teaching and practice of the profession.

The course of instruction in the Ontario Veterinary College is exactly the same as, till quite recently, it was in the Edinburgh and London Colleges. Students are required to attend two sessions *at least*, and to pass the examinations before obtaining a diploma. They are also required to pass the summer months in practice with a duly qualified practitioner. The facilities for this are very great in connection with this College, for, whether the students spend the summer in Toronto or in the country, they can always be with gentlemen doing large and paying businesses. Students are also required to pass a *practical examination* before graduating.

In view of the services of this College to the cause of Veterinary education in the past, and its prospects of usefulness in the future, it must be painful to all who have the advancement of the profession at large at heart to notice the spirit of jealousy manifested towards it by some writers. The commanding talents of the Principal, and the ability of its staff of Professors, have given it the confidence of the whole country. About fifty young men from every part of the continent attended its classes during the past winter. The high state of efficiency attained by its graduates, the increasing attendance, and the interest manifested in its progress over the whole continent, indicate that it is but on the threshold of its career of usefulness. The wisdom and energy which have achieved for it the eminent position which it now occupies will carry it forward still further in the path of advancement.

In conclusion, I may be permitted to notice briefly a recent attack upon this institution—an attack, I am sorry to observe, emanating from an interested party, not free from offensive personalities, and altogether surprising to one accustomed to look upon the writer as a gentleman.

One chief objection to the Ontario Veterinary College, in the mind of the writer referred to, appears to be the shortness of the time required to graduate. While not denying the benefit of lengthened study, the fact that the Edinburgh and London Colleges have sent out so many eminent Veterinarians when their requirements were the same as those of the Ontario College, broadly and pointedly contradicts the assumptions and conclusions of the article referred to; and the professional public will be somewhat interested to know that the practice of the College whence these attacks emanate does not invariably agree with its preaching in the matter of allowing a “short cut into the profession.” One, at least, of its recent graduates has been allowed, according to his own statement, an exceedingly “short cut into the profession.” This instance is not referred to for the purpose of casting any slur upon the

gentleman so graduated. It is certainly not for a moment to be doubted that the Montreal Board of Examiners (although, apparently, not unpic cable; *vide* REVIEW, page 94) acted in this, as in other matters, conscientiously. The graduate himself, too, it is hoped, will endeavor to elevate his chosen profession in other ways than by writing disparagingly of his professional brethern.

In regard to matriculation examination, I believe I am correct in stating that Professor Buckland examines all students entering the Ontario College.

But remarks derogatory to other institutions I would wish to leave for those to make who find them congenial to their tastes.

Remembering our motto, it is earnestly to be hoped that all *gentlemen* will endeavor to unite, instead of to sow discord in the ranks of our profession. This continent offers a noble field for the efforts of all. If we are, as a profession, to occupy the proud position which is our right, it will not be by devoting our energies to disingenuous criticism of others (nor by endeavoring to class *quadratic equations* as a branch of arithmetic), but by each doing his duty in his own sphere. *Vis unita fortior.*

WHAT ELSE IS IT, BUT VILLAINY ?

BY A. LIAUTARD, M. D. V. S.

I will leave the reader to answer the question, and limit myself to part of the history of a case, which, from its beginning, has proved to me an unusually interesting one.*

Every one acquainted with the anatomy and pathology of the guttural pouches knows, that in case of purulent collections in these cavities, relief, often permanent, is obtained by the operation of hyovertebrotomy—the puncture of the pouches in one of the three parts of their extent, middle, upper or lower extremity, as the case may be. This case, at first, came once more, to confirm that result—though it has not been without much thought on our part, and, above all, much suffering on the part of the animal. I will be as brief as possible:

About the 23d of last March, I was requested by the Superintendent of one of the railroads of this city to visit “an animal who had some trouble about her throat.” At my call, I found a handsome, dappled

* We will, in our next, give the whole report, with its termination.

gray mare, 6 years old, in good condition, with a swelling of the parotid region; this was soft, extending all round the throat, slightly forward in the intermaxillary space, not painful; being pushed from side to side a liquid was heard flabbing against the sides—a slight purulent discharge existed on the off nostril; on that side of the gland, at the lower extremity, there was a fistulous tract, running upwards and through which, by means of a canula, a small quantity of pus was collected. Appetite is good; general appearance satisfactory. The mare has been in that condition for some time, after a catarrhal affection.

The diagnosis was made of collection of pus in the pouches, and I left word that in the afternoon I would return and operate. With that intention, about 2 o'clock P. M., I was near the patient again, where, during examination, and through answers to my inquiries, I was told that "she had been lanced already three or four times before by the doctor." *Who was he?* Mr. X. Strange as this may appear—though I knew of that gentleman attending to that stable—the case had proved of such interest to me that I never thought for a moment to inquire who had had charge of her until that moment. I, of course, stopped at once all interference, declining to do any more unless Mr. X. was present. We met afterwards, and without going into any more details, I will say that it was decided to operate on her on the 26th. Several members of the profession were present; also several students of the American Veterinary College.

The mare being cast on her left side, Mr. X. made an attempt to puncture the pouch from below, which was unsuccessful, as the membrane would retire before the pressure of the trocar. It was then decided that I should perform the operation from above, through the occipito-hyoideus muscle. Without describing the operation, with which we are all familiar, I will say that, without difficulty, we introduced the trocar into the cavity, and pushing it downwards below the bifurcation of the jugular, a seton was introduced from below upward; having no tape ready at hand, *a white handkerchief handed to me by one of the assistants was torn, and a long piece of it used instead for the seton.*

Leaving word to Mr. X. to change that temporary seton as soon as possible, I left the stable. When the animal was allowed to get up but very little pus flowed from the lower opening. From day to day, for some time, I visited the patient, and though there may have been some improvement in the condition of the throat of the mare for a few days, it soon returned to the same condition, so much, indeed, that I soon was

convinced that my seton was of no benefit, and I left word to have it removed, which I was told was done.

This closes the first part of the case.

People sometimes are suddenly struck by peculiar events, which take such a powerful hold on their minds that at all risks they are bound to follow them to the end; and such was it with me in that case. Why should the operation, which I knew was performed as it ought to have been, proved to be a failure? was a question that I could not answer.

I, from time to time, visited the mare; the wounds of her throat healed, but the swelling increased, and with vague hope to bring the suppuration to the surface, embrocations of populeum and basilicum ointments were made over the parts, warm fomentations and flaxseed meal-poultices being applied. Three or four abscesses formed themselves were opened, but no change in the throat—always the same appearance of the swelling, the same feeling, the same noise of the contained fluid striking against the hand when pushed to and fro from side to side—always, in other words, the symptoms of suppurative collections of the guttural pouches. Some time afterwards a large abscess developed itself in the middle of the inferior cervical region; when ready to open, I think about two gallons of suppuration was allowed to escape. Anti-septic treatment and stimulants had been freely used; our patient bore it all well; her condition was good, but no change in her throat. One day she was driven, but roared so much that it was found impossible to give her even the slightest exercise.

During that time, though the pouch had filled, the abscesses had closed, the thickening of the parotid had disappeared, and it was easily perceived that but little trouble could be experienced in making a counter opening below the lower end of the parotid, and I thought a success in the treatment.

On application to the President of the Road, he consented to have her removed to the Am. Vet. College, and on the 24th of May, two months after the *first failure*, she was operated, by a longitudinal incision a little above the course of the jugular made through the skin, by a division of the sub-cutaneous fascia and of the levator humeri, a dissection and isolation of the blood vessels and nerves, they being pulled forward by the flat depressor, the cellular tissues over the pouches being divided, and an incision about $2\frac{1}{2}$ to 3 inches being made in the pouches. While lying down no liquid escaped, but in the decumbent position it was plainly seen at the bottom. As soon as the mare was up a large mass of bloody suppuration, quite thin and sanious escaped, with such

rapidity that it had almost all flown out before some could be collected; a long tent of oakum was introduced, and the animal, returned to her stall, went to eat—thought convalescent.

This closes the second part of the case; and with this satisfactory result is rising also the question-title of the article, and the explanation of the first unsucccess.

About three hours after the operation, desiring to remove the tent of oakum which was left first, and to introduce a larger one, I went to my patient. I carefully removed the tent, and pulled out with it a black long mass, very offensive, measuring $10\frac{1}{2}$ inches in length—the exact length of the space between the two openings of the sides— $1\frac{1}{2}$ in width, with a seam on one edge, which was nothing else but the *piece of the handkerchief which had been used first as a seton*. How did it come there? How did it reach these cavities? are the questions to which the whole history of the case has brought us, and which we are afraid to answer.

INSOLATION—SUNSTROKE—THERMAL FEVER.

BY A. LARGE, M. D., M. R. C. V. S. L.

As the season is approaching when sunstroke is likely to occur, in both man and beast, a few words on the subject may not be untimely.

In the so-called cases of sunstroke, we may have three different varieties, and produced in two different ways—direct sun rays and effect of high temperature.

The varieties are, first, those cases simulating *cerebral meningitis*, or inflammation of the membranes of the brain; second, cases of *exhaustion* from the effects of heat (no brain symptoms, but debility both muscular and vascular); third, a mixed variety of the two forms. It is necessary, of course, to make out the form of attack, with a view to treatment. The meningeal variety requires opposite medication, as a rule, to the cases of exhaustion, while the third or mixed form will demand a modification that requires considerable professional tact to pursue.

Bleeding has been strongly advocated, assisted by purgatives, in the meningeal variety, but this treatment does not always carry the cases through, even if seen early. Strong stimulation seems to be indicated in the exhausted cases, but the increase in temperature of the blood, as shown by the thermometer, must be a guide to treatment. During the

Centennial Exhibition, many cases occurred in persons visiting Philadelphia. They were carefully examined, and where the temperature was found *high* in any form, the ice bath externally, quinine and brandy internally, were used with satisfactory results, the patient being kept in the ice-bath until the temperature of the body was reduced to 101°, or, I believe, 100° in some cases.

Acting upon these facts, the first case that presented itself to me was treated as near this mode as I could do it.

The patient, a New York horse, was driven to Brooklyn on one of the hottest days of the summer of 1876. He fell on the street, about one block from my office, from the effects of heat, about 2 P. M. He was brought to my place at 5 P. M., by one of the officers of the Society for Prevention of Cruelty to Animals, assisted by a number of men. The patient was a sorry looking case, and I had no hopes of him, as he was lying on the street in front of my door. To my surprise he rallied, and was perfectly well in the course of three hours, and went home the next day.

The treatment as carried out was ammonia in free doses internally, and, not having a bath-tub for a horse, playing water in a large stream from a hose, over the head and body, as he was lying down, until he was in a pool. I kept the water running over him for about an hour and a half without intermission, by which time he was thoroughly conscious, got up without any assistance. The patient was *not wiped off dry*, but left wet and shivering, and water occasionally thrown on him for another hour or so.

In these cases, where the temperature is high, the cold water continually applied acts as a restorative remedy, by reducing the temperature, and preventing the destructive and rapid changes in the blood, from its increased chemical action.

CHANGE OF SCENE FOR CONVALESCING EQUINE PATIENTS.

BY THE SAME.

It is found necessary in the practice of human medicine to send patients to other scenes, where they may have change of air or ventilation, of society, of food, etc., when they are suffering from chronic diseases, as dyspepsia, consumption, etc.; also convalescing from acute affections, as fevers; the change and pleasant surroundings are considered, and rightly so, to hasten recovery.

It may seem strange to the uninitiated, but I am confident the same principle holds good with regard to animals, particularly the horse.

It must be within the experience of every practitioner, that animals which are irregular feeders, and looking anything but thrifty, as a rule, greatly improve by a sojourn in the country (if a city horse) for the summer, even when worked regularly. How often are we told of animals, that have an occasional cough when in the city, lose it entirely in the country. But it is in reference to patients under treatment I would speak more particularly. We frequently find animals that have passed the severity of their sickness—perhaps, the only symptoms remaining—want of appetite, some debility, etc., cases that tonics and the best prepared food seem not to stimulate nor provoke an appetite. What is the reason? Is it that the patient is tired of the sameness, or is it loneliness, as when the patient is left to himself all day, as sometimes happens in most stables, his companions that he is used to, and fond of, being in good health, have to earn their living rain or shine.

One or the other, or both combined, have much to do with it, I am convinced; it has proven so in a number of instances—an example of one will suffice: At the present time I have a patient in my stable who has had influenza; he was treated in his own stable at first and responded well, excepting he would not eat; the best of food was offered him, and the best care taken of him, when his attendant was at the stable, *i. e.*, early in the morning and at night; the rest of the time the animal was *alone* in the stable. Was this the cause of the difficulty? I think so.

As soon as I had him removed to a stable, with, perhaps, a little purer air than his own, and where he had company to interest him, the appetite *immediately* returned without taking stimulants or tonics, and a single meal has not been lost.

SALICYLIC ACID.

BY THE SAME.

This agent I have tried in two cases—one of suppurative synovitis, the other of influenza (a relapsed case), of high temperature.

Its action is stated to be antiseptic, anti-pyretic, and tonic. My experience, as far as it goes, and that is but slight, corroborate these actions.

In the synovitis case, there was great pain, temperature well up, animal sweating, anxious, refusing all nourishment. This condition was speedily improved under the action of the medicine, and no symptom of pyemia, that I had feared, appeared; the same local treatment was adopted during its use as had preceded it.

The influenza case had been treated domestically for a week, was supposed to be convalescent, was driven and relapsed.

When I first saw it, in the afternoon, the patient had eaten nothing during the day, pulse quick, weak, respiration quickened (no lung complication), temperature $105\frac{3}{8}$ F. Under the action of the remedy, with ammonia, the next morning I found breathing was tranquil, pulse slower and stronger, had eaten its breakfast, temperature 101, and did not again go up. In three days the patient was discharged.

CEREBRO-SPINAL MENINGITIS, WITH HEMATURIA.

BY THE SAME.

The patient, a chestnut truck horse, was taken, the latter part of March, with slight paraplegic symptoms of cerebro spinal meningitis, and *passing bloody urine*; this was about noon. I saw him about 5 P. M., when the symptoms were strongly marked, and what seemed to me pure venous blood passed in considerable quantities (every half hour or hour, as was stated by the attendant).

The animal was placed under the usual treatment for the disease, with the addition of hypodermic injections of ergotine for the hematuria, with the result of completely checking it (the urine being natural) by noon of the next day.

At 5 P. M., while visiting the patient, who walked better, and the urine still remaining clear, he suddenly presented head symptoms—twitching of ears, shaking and elevating the head—he, in a minute or two more, fell down and expired. Death caused by hemorrhage in the brain (apoplexy).

This case is cited only for the interesting and not common symptom of hemorrhage, and showing, by the after apoplexy, the passively dilated condition of the small vessels.

ANTAGONISM OF BELLADONNA AND OPIUM.

BY THE SAME.

A patient, 5 years old, that had exhibited symptoms while driving, that was thought necessitated belladonna as a remedy, received gr.iii. atropia by hypodermic injection. The symptoms for which it was given soon disappeared, but were speedily followed by symptoms of belladonna poisoning—spasm of muscles, elevation of the head, blindness, very dry and coated tongue. This condition was relieved in four to five hours, by the hypodermic injection of fl. dra. iii. of Magendie's solution, and has been well ever since.

EDITORIAL.

THE REVIEW ABROAD.

At the risk of being taxed with egotism and conceit, we cannot resist the temptation of presenting our readers with an extract of the highly flattering notice which Mr. G. Fleming, F. R. C. V. S., has seen fit to give in the columns of his able journal, of the AMERICAN VETERINARY REVIEW; but as we have not looked upon the article as a personal compliment, but as one to the whole American Profession, we have thought that it was but right to lay it before the Veterinarians of this Continent, some of whom may not read the *Veterinary Journal*. Coming, as it does, from one whose name is world-wide known, and from one whose enthusiasm in behalf of Veterinary science is appreciated by all, we feel that the kind remarks alluded to are to us a great reward for the work already done. When we urged before the United States Veterinary Medical Association the necessity of publishing the REVIEW monthly, we were satisfied that its publication would fill amongst us a need which was much felt, and we are glad to-day to say that we have not made an error. The numerous letters which we receive daily, the words of encouragement which come to us from every part of the Continent, the constant receipt of communications, of papers which are sent to us by all Veterinarians of the United States and Canada, are sufficient proofs that our undertaking will be well supported. We have in view but one object—the advancement of our profession—and if, by

the publication and success of the REVIEW, we can reach that object, if we can draw the Veterinary Science in America from the low standing in which it has been for so many years, our labors will have received their full reward. From its first number the journal has been improving in interesting matter, and we shall spare nothing to make it worthy of our noble profession, and interesting to our indulgent colleagues.

VETERINARY EDUCATION.

With the conclusion of Professor McEachran's paper, and a translation of the doings of the Veterinary School at Dorpat (Russia), we print two letters on the subject of Veterinary Education, from two graduates of the Toronto Veterinary College. Our friend, Professor Smith, has informed us of a communication on the same subject; and we have no doubt that other Veterinarians of the United States and Canada will have something to say in relation to that very important matter. We ask for them; it is only by reading the opinions of all parties interested that we can arrive to a change which will necessarily mean progress. From the discussion which will be raised it will not be this school or that college which will be benefited; it will be the profession at large. This Continent is large enough to support several institutions of Veterinary Science; and there ought not to be between them any other sentiment of rivalry than that, to benefit as well and as much as possible the guardians of our live stock.

AS HISTORY IS WRITTEN.

We have received lately the latter part of the "Dictionnaire de D'Arboval," rewritten by A. Zundel—one of the best works which illustrates to-day French Veterinary literature; and at the article *Vétérinaire* (Veterinary), we have found a few lines relating to the profession in America. It is so amusing for those who are acquainted with the subject, that we have thought proper to give our readers a translation of the whole article. For the writer to say, that *our domestic animals have yet but little value*; that Veterinary Colleges founded by Cumming? exist; that there is an association which has library, museum, etc., and that we have a periodical published by Dadd, show on his part a lack of knowledge which we would advise him to improve. We would friendly refer him to the first number of the REVIEW, where he will find the

history and progress of American Veterinary Science, as we had the honor to present it in Philadelphia at the meeting of the United States Veterinary Medical Association.

NEW YORK COLLEGE OF VETERINARY SURGEONS.

We have unexpectedly received the announcement of that institution, and for the benefit of the old alumni of that defunct school greet the news of its resuscitation with welcome. Our past connection with that college tell us of the possible success which may reward the efforts of those who are engaged in this new undertaking, if properly managed. If it was needed, this would be for the *American Veterinary College* a stimulus, by which the students and the profession could be benefited.

To regulate the printing, and avoid the issue of an unnecessary number of the REVIEW, we would again ask those who desire to receive it to inform us of their intention, by sending us their name and address, with request of entering the same on the subscription book.

EXTRACTS FROM FOREIGN JOURNALS.

BY A. LIAUTARD, M. D. V. S.

TRAUMATIC TETANUS CURED BY NITRITE OF AMYL.

After opening the bowels by a drench of linseed oil and spirits of turpentine, the animal received the next day, per rectum, 4 oz. of chloral hydrate, which not proving of any relief, were followed by subcutaneous injections of nitrite of amyl in xx minims doses morning and evening, the second dose being followed by marked benefits. This treatment was kept up till the 9th, when, called in a hurry, the patient was found stretched out on the floor, perspiring profusely, with every muscle of the body spasmodically contracted, the nostrils dilated, breathing much accelerated. It being a question of life or death, xlv minims of the nitrite were injected. The effect seemed to be marvelous. In a few minutes, with a little help, the animal got up, the muscles of his body being much

relaxed, and he began to take some food. From that day to the 21st, the same quantity of amyl was injected, with marked benefit each time. They were discontinued the 22d, and from that day hence the animal kept up towards recovery.—*Veterinary Journal*.

PURPURA HEMORRHAGICA IN THE HORSE.

The author reports three cases of that disease which he treated, the first by the administration of oil of turpentine, 2 oz. doses, with gentian, three times a day. This treatment, followed during ten days, was replaced afterwards by the same administration morning and evening, and sulph. quinine at midday, for *ten weeks*. The animal stood up, slowly improving, when a dose of purgative medicine, injudiciously given by the owner, was followed by severe colic and superpurgation. This was, however, overcome, and the animal recovered.

The second case was treated also with oil of turpentine, and his head steamed with hot water and spruce-fir tops. In about four weeks the animal was apparently convalescent. Then a mild cathartic being given to improve his condition, superpurgation, as in the first case, followed, but also successfully combated by active treatment.

The last case received 4 drachms of chlorate of potash morning and evening, and 1 drachm of sulph. quinine during the day, with strong beer. For food, she received a gallon of milk twice a day. In a few weeks she recovered.

As remarks to the article, the author calls the attention of the readers to the action of cathartics during the existence of the disease, and to the bad effects of the turpentine, which, for the future, he says he will not use, preferring to employ the chlorate of potash.—*Veterinary Journal*.

[The treatment by turpentine in that disease is highly recommended by European authorities, and though it is likely to give rise to slight abdominal troubles, such as griping, we would scarcely see from the reading of the paper why complaints are made of the *bad effects* as long as under its administration the patients were doing well. We will publish in another number of the REVIEW, history of cases of the same disease treated by the infusion of black coffee, which gave us such a good result that we would recommend it to our readers.—ED.]

A CASE OF LATENT GLANDERS, WITH LESIONS OF THE GENITAL ORGANS.

BY PROF. COLIN, OF ALFORT.

(From the *Bulletin de l'Académie de Médecine de Paris*.)

The subject was a mare about 15 years old, weak and much worn out. She had no apparent disease of the maxillary glands, no nasal discharge, no swelling of the legs, no cutaneous humors, no ulcerations; in fact, none of the symptoms of glanders or farcy. Still, she presented lesions in the lungs, in the liver, in the larynx and trachea, in the genital organs and in the blood. The lesions are described as follows :

The lung is enormous, and partly adherent to the right costal walls by pleuretic membranes. Its surface is covered with rosy, yellow, gray and brown spots. These are the largest, and give the organ the appearance it presents in old pneumonia, where different forms of induration and purulent or caseous collections are found ; but what gives the lung the aspect of glanderous tissue is the presence of grayish nodules with citrine serous infiltration. Cuts made through its texture show large indurated masses, with nuclei of recent limited pneumonia and tubercles, some of which are gray and hard, others soft and purulent in the centre. In some points these are of the size of a hen's egg, are soft, and without communication with the bronchia. These lesions are of different ages. The more recent are in the anterior lobes and middle part of the lungs. There is no doubt in their appearance with those of a glanderous lung.

In the trachea and larynx, the eruption is not so well marked, and is more recent. The pustules of the trachea are small, not well prominent, and surrounded by a narrow circle. None are ulcerated. The larynx has two large flat pustules, with a wide red ring round, on each side of the epiglottis. Many confluent young pustules cover the vocal cords. No ulceration, properly so called, in any part. These lesions belong to the second age of glanders.

The larynx is the seat of a peculiar lesion, not commonly met with in glanders. The left half of the arythenoideus muscle, and the muscular fibres of the left vocal cord, are discolored and atrophied. The left recurrent nerve is in way of degeneration due to the pressure made upon it and the pneumogastic of the same side by the bronchial ganglions. These are much more hypertrophied than in ordinary glanders, and have very large anterior prolongations surrounding the cross of the

aorta, upon which passes the diseased nerve. It is the same nervous lesion that is found in roaring.

The most important lesions are those of the vagina. They consist in two large circular ulcerations, irregular, and situated, the first, at the internal face of the left lip, near the inferior commissure; the other below and near the urinary meatus. They constitute an exceptional peculiarity, as they have not been described before.

The examination of the blood, incompletely made, shows a state of glanderous leucocythosis, well marked.

Though this animal suffered with latent glanders, in the full sense of the word, the nasal lesions were not entirely missing, but, on one side, they are very deeply situated on the septum, near the ethmoid, on a point impossible to reach with the eye or the finger. They are rudimentary and very recent. They consist in two or three small round nodules, hard, not ulcerated; and for this condition do not give rise to the characteristic discharge, nor to the tumefaction of the ganglion.

Taking all the lesions in consideration, the development of the disease can be divided into three periods.

The pulmonary lesions, well marked, are undoubtedly the oldest. They indicate the first age of the disease, which may have lasted very long, and comprehend several stages of development of infarctus, pseudo tubercles, and abscesses. The lesions of the trachea and larynx are more recent, representing the second age—the period of transition.

The nasal lesions form the third stage. If the animal had lived several weeks or months more, the discharge following the ulceration of the pustules, the swelling of the glands, would have constituted a fourth period of that disease.

As conclusion, Mr. Colin asks: "If many cases of glanders, which seem to make their appearance suddenly, are not, properly speaking, old cases, which had remained latent for a period of various duration before arriving to the form, where the nasal characteristic symptoms are well developed."

"If the ordinary forms of glanders are mostly cases of latent diseases, or glanders already existing in the lungs, trachea, larynx, before the eruption of nose, the discharge and ganglionar swelling."

"If the leucocythosis would not be the most positive means of diagnosing the disease in case of latent form, and as long as the symptoms of the affection are not sufficiently characteristic." (*Archives Veterinaires.*)

TRANSLATIONS FROM GERMAN PAPERS.

BY DR. WM. OSLER, OF MCGILL UNIVERSITY AND MONTREAL VETERINARY COLLEGE.

HÆMOGLOBINURIA IN HORSES.

[From the *Deutsche Zeitschrift f. Thiermedizin.*]

Bollinger has a long article upon this disease [known more commonly by the names Hysteria (Moore), Enzootic Hæmat uria (Gamgee), Azoturia (Williams), "Schwarze Harnwinde," of German authors], of which the following is a condensation. The chief characteristics of the affection are its sudden onset, violent course, a remarkable change in the urine, together with a sub-paralytic condition of the hind legs. Great diversity of opinion prevails as to its nature, but the theories may all be divided into the following groups: (1). That the essence of the affection consists in disease of the kidneys, a morbus brightii, acute parenchymatous inflammation, a hemorrhagic nephritis. Some authors have supposed a simultaneous disease of the blood and kidneys, or, as Herring states, an acute morb. brightii depending upon some blood change. (2). That it is essentially a blood disease, variously characterized by authors as a "blood dyscrasia," "blood anomaly," "blood dissolution," similar, in fact, to typhus and anthrax. It has been called Lumbar-Typhus (Leudentyphus) by the Veterinary Surgeons of Holland, and Spinal-Typhus by those of Denmark. According to Siedamgrotsky, changes in the muscles give rise either primarily, or secondarily, to alterations in the blood, which induce the hæmoglobinuria and nephritis.

(3). That a disease of the spinal cord is the first factor, leading to subsequent kidney disease. It has been regarded as a spinal paralysis with secondary palsy of the renal nerves, as a hyperamia of the cord and its membranes, and as a rheumatic inflammation of these parts in the lumbar region. Vogel first (1873) described it as a septic blood disease, of which the renal disturbance formed a part; later (1875), he regarded it as a toxic or dyscrasic spinal paralysis, dependent, however, upon a primary blood infection.

(4). That the affection is of a rheumatic character; hence the name "rheumatic spinal paralysis."

To remove any doubt as to what disease is here meant, the following short sketch is given: The so-called "Schwarze Harnwinde"

(black dysuria), or "Windrehe" (wind-founders), comes on, as a rule, quite suddenly, and without premonitions. A horse, after standing for a few days in a warm stall is brought out and driven for a short time or worked. There is noticed, often within half an hour, as the first symptoms, a sudden outbreak of sweat, weakness in the hind legs, and the animal falls as if exhausted by overwork, often being unable, without assistance, again to stand up. Soon one or other of the hind limbs become paralyzed, often both. As a rule, there is observed a marked adematous swelling, arising, quite acutely, in the lumbar region, extending along the back in the neighborhood of the kidneys, and posteriorly to the tail. The muscles in these localities are as hard as boards. The urine presents a remarkable change, possessing a dark red, coffee brown, or chocolate color, a strongly acid reaction (in the beginning often alkaline), high specific gravity, and, on microscopical examination, contains either none or only a few red corpuscles; but, on the other hand, characteristic tube-casts, hyaline at first, later, granular and epithelial. Chemically, the presence of albumen in considerable amount can be detected, and also with the aid of the spectroscope hæmoglobin (hæmoglobinuria). Under favorable conditions recovery takes place, often in a short time, an hour, or more commonly in several. In severe cases there is fever, with evening exacerbations, the temperature rising to 40–41° C.; in many instances, even at the initial sweating, the temperature has been from 41–42° C. Pulse and respirations are more or less increased—in the later stages there is difficulty of respiration. The appetite is often retained; in many cases, lessened or absent. There is great thirst; the consciousness is unclouded. In cases of recovery, the specific gravity of the urine quickly diminishes; the albumen and the dark color disappear, and in twenty-four hours the animal appears perfectly sound again. Sometimes one hind leg remains lame for a few days or even a week. In an unfavorable issue, which happens in the majority of cases, the disease usually lasts three or four days, but may end fatally in a much shorter time. At the autopsy, the blood is found dark and dirty-looking; the muscles are soft, appearing as if cooked; the liver clay-colored; the kidneys softened, sometimes very slightly changed; the bladder is empty, or contains tar-colored urine. In the spinal cavity, the arachnoideal fluid is increased, and the vessels of the membranes, especially in the lumbar region, have been found injected. The following illustrations of the disease are given:

Observation I. A 7-year old horse, which had been standing in the stable for four days, was attacked with symptoms of the disease after

driving for a quarter of an hour. It was bled (7 lbs.), and an antiphlogistic treatment adopted. Palsy of the hind limbs ensued, and great straining from bladder and rectum. The animal died in thirteen hours. The organs, with specimens of urine and blood were sent to the author for examination. Nothing definite could be stated as to the condition of the kidneys, which were swollen, blood-stained, and beginning to decompose. The spinal cord was of good consistence; the urine had the color of dirty Bordeaux wine, and contained numerous molecules of albumen, with fungi, but no casts or blood corpuscles. Analyzed by Professor Voit, in the Physiological Institute, it yielded 1.18 per cent. of hæmoglobin. Nothing abnormal noticed in the blood itself.

Observation II. A horse, in good condition, was kept in the stable for a few days, being fed on beets, clover, potatoes and oats. Shortly after being taken out, and while in motion, he began to sweat and showed signs of weakness in the hind legs, so that he was with difficulty got home. In the stall the paralysis became more marked, and the animal could not stand up; there was copious sweating, greatly increased respiration, with attacks of dyspnœa, occasional straining from the bladder, and great hardness of the lumbar and shoulder muscles. A venesection to 5–6 litres was employed, during which the animal stood up, became quiet, and the condition so much improved, that after four hours convalescence was established. The blood showed nothing abnormal; the urine was as in the preceding case.

Observation III. A heavy draught horse, 6 years old, which was attacked with well marked symptoms of the disease, at 8.30 A. M., after having been uneasy for some time previous, and died in an hour. At the autopsy, 6 hours P. M., the lungs and heart were found healthy; the liver enlarged, tissue coarse, clay colored, and very anæmic; spleen of moderate size, and contained one hemorrhagic spot and a few infarctions. The kidneys were enlarged, the tissue very flabby and soft, resembling spleen-pulp in consistence. The surfaces were mottled and covered with small hemorrhages. Nothing abnormal in the stomach or intestines. The bladder contained about a litre of coffee-brown urine; the surrounding parts of both kidneys, particularly beneath the lumbar muscles, were very œdematous. The inner and outer lumbar muscles, especially the former, strongly œdematous, and extraordinarily brittle; the connective tissue sheath and the trunk of the nervus ischiadicus also œdematous. In the spinal cavity, the sub-arachnoideal fluid was increased; membranes healthy; cord of good consistence. On microscopical examination nothing remarkable was found in the blood. The

liver was in a condition of cloudy swelling, the cells enlarged and full of fine granules. The kidney presented a similar condition, the epithelial cells being full of fine granules—"in a word, in a condition of a parenchymatous nephritis, with rapid degeneration." The urine contained the usual constituents in this disease—a few casts, granules of albumen, no blood corpuscles. The musculus ilio-psoas showed, in addition to great œdema, the changes of the granular and hyaline degeneration; the muscle fibres were completely loosened from their connections. The neighboring muscles presented a similar appearance.

Observation IV. In the blood and urine of an animal affected with the disease in question, the following changes were determined:

Color of the urine, a dark, dirty brown—it contained an enormous quantity of albumin, which, according to an investigation by Dr. Tappeiner, in the Pathological Institute, consisted chiefly of undecomposed hæmoglobin. In the urine of the fourth day of the disease, the quantity was double of that on the first. Microscopically were found albumine granules and casts, both granular and epithelial—no blood corpuscles. The blood drawn direct from a vein showed not the slightest change.

An analysis of the chemical and pathological features of the disease follows:

The three most important symptoms of the disease are:

1. Hæmoglobinuria.
2. Albuminuria.
3. Paralysis, or a sub-paralytic condition of the hind quarters.

[TO BE CONTINUED.]

REPORT OF CASES.

ACCIDENTAL POISONING OF A HORSE BY PARIS GREEN.

By C. P. LYMAN, M. R. C. V. S. SPRINGFIELD, MASS.

The subject, a good sized bay gelding, twelve years old, with a strongly-marked lymphatic temperament, was the property of a farmer, who placed within reach of the animal a bucket containing rye flour through which had been mixed Paris green, which mixture was intended for the potato bug, but which, through carelessness on the part of the man, never reached its intended destination, but instead, on May 31st, at about 2 o'clock, P. M., was partaken of by the horse in considerable quantities, just how much could not be ascertained.

Nothing was done about it, and no particular change in the animal's actions was noticed until about six o'clock, when he refused to eat his supper, but showed no other sign of distress. Upon this, the wisdom of the neighborhood administered in solution about one and one-quarter pounds of Epsom salts, and the animal, showing no signs of pain, was left alone through the night. In the morning the same state of things continuing, and the bowels *not* having moved, my services were called into requisition, and I saw him at nine A. M., June 1st. He stood with his legs well apart, head drooping, and a peculiar *listless*, vacant expression of the eye; no perceptible pulse at jaw, and no artery; extremities *cold*, and with but slight sensibility; there was an *aimlessness* in his management of them during motion, but still not seeming to amount to paralysis, even remotely; respiration deep, slow and with apparent ease. *There was not at this time, nor at any other, the slightest symptom of abdominal pain.* He died quietly at two P. M. A hurried, and, consequently, imperfect post-mortem examination, showed the mucous membrane of the stomach intensely inflamed, immensely thickened, and of a deep *mulberry* color evenly distributed; its solid contents (hay and grass) of that bright green color artificially given to pickles by the use of copper. The membrane of the small bowel was thickened, but not to such an extent as that of the stomach, and of a bright arterial color; its contents fluid, and with a considerable admixture of extravasated blood; membrane of the colon, no thickening, but moist, with a decided blush; no peritoneal inflammation throughout. In poisoning by salts of copper, Drouard found that six grains of the sulphate given to a dog caused death in half an hour, but left no appearance of inflammation; two drachms have been given with a like result, except there was a blueness of the villous. A drachm applied to a wound, caused in the dog rapid prostration, and death in four hours. "Injected into the jugular vein, it speedily reduces and arrests the action of the heart, fifteen grains proving fatal in twelve seconds."—(DUN.) In poisoning by arsenic, the time required to produce death in a given number of reported cases was from four to nine days, with all the evidences of active inflammation of the mucous membrane of the whole digestive canal. "But sometimes these symptoms are almost or entirely absent, and instead of the patient running the usual course of arsenical poisoning, profound coma sets in, from which he never wakes, but dies in a few hours, the mucous membrane of the stomach and intestines being free from all inflammation."—(VIRCHOW.) "After a poisonous dose frogs become apparently paralyzed; at the same time they have lost all sen-

sation. This loss of sensation is proved to be due to the action of the drug on the spinal cord, and not on the sensory nerves. The apparent paralysis is supposed to be due to the loss of sensation."—(RINGER.) Sklarek finds that arsenic given to frogs and cats slows and weakens, and at last arrests the heart; and from Harley's observations, it appears, that, after death, the heart of an animal poisoned with arsenic ceases to beat sooner than that of one destroyed by mechanical means.—(*Ibid.*)

ENORMOUS FATTY TUMOR OF THE SIDES—REMOVAL—RECOVERY.

BY M. J. MATTISON, N. J., STUDENT.

On the 13th of April, 1877, I was called to see a black gelding, with the following history: Since 1862, the present owner has noticed on the left side a tumor of the size of a walnut, which did not seem to interfere with his health or his work, until 1876, when it began to grow so rapidly that, in less than a few months, the horse could not be used, and in the winter of that year his general condition began to fail, his appetite became capricious, etc., etc.

On examination, the tumor was found to be situated in the left hypochondriac region; it is quite hard, more or less painful, which is attributed to the excessive stretching of the parts, having more or less heat; it is irregular in shape, somewhat pedunculated, and measuring 42 inches in circumference at the largest base, and 10 inches from base to apex. Being doubtful of the results, on account of the debilitated condition of the animal, I, however, recommended the removal of the tumor as the only means to restore the animal to his usefulness.

Accordingly, the animal being prepared and thrown down, and placed under the influence of chloroform, the hairs were closely clipped over the whole tumor; an oval incision, 15 inches in length, was made over it; the flaps, being dissected and turned back, the whole tumor was severed from its cellular covering and removed. It contained in its centre quite a large amount of bloody serum, with some floating particles of fat. The whole mass, formed of fat, weighed no less than thirty (30) pounds. The flaps were drawn together by sutures, and the wound dressed with carbolic solution. The animal being released, was placed in his stall, and a wide bandage put all round his body.

April 14th—Animal is dull; appetite poor; pulse feeble; wound swollen some.

Alcohol, 1 oz. ii., with powd. gentian, 1 oz. ss. is given to him three times a day; wound dressed with carbolized solution.

15th—No change.

17th—Animal is better; appetite improved; pulse stronger; wound less swollen. Same treatment.

18th—A portion of the skin in the centre of the wound has a tendency to slough off; offensive smell from the wounds. Same treatment.

19th—Portion of the skin has sloughed. Dressing with chloride of zinc.

21st—Better appearance of the parts; and from that day rapid healing took place. At the time of writing, the wound is about the size of the palm of the hand, and is rapidly closing.

CORRESPONDENCE.

THE THERAPEUTICS OF ACONITE.

MR. EDITOR:

That aconite is an almost indispensable agent in the therapeutics of Veterinary Medicine will hardly be denied by any one acquainted with its value; but that it enjoys the extensive remedial properties attributed to it by Mr. John Dowling Allman, in the May number of the *Veterinary Journal*, or that its use should be as general as recommended by this author, is more than doubtful. That it is an excellent sedative, and unrivalled as a remedy in the treatment of some inflammations is well known by most practitioners of medicine; but the sweeping assertion, that it can and should be used in all inflammations and fevers, where there is a high elevation of temperature, is as erroneous in principle as it is pregnant with the elements of non-success to one who would accept the statement as true, and practice in accordance therewith.

The value of thermometrical observation in the treatment, as well as in the diagnosis of disease, is fully appreciated by many American Veterinarians; but that the thermometer, in registering the animal temperature at the same time, indicates those conditions in which sedatives are, or are not to be used, is beyond the comprehension of the writer's knowledge of therapeutics.

Mr. Allman states that a high temperature is *always* an indication for the use of aconite, and that it is of service in *all* inflammations and acute specific diseases ; governing the amount of exudation and reducing the animal temperature. Now, we very much doubt, whether even Mr. A. would use aconite in a case of *coup de soleil*, where the temperature was at 108° F., and the pulse so weak and rapid as hardly to be felt or counted ; yet it is a case where the thermometer registers a high temperature at the very inception of the injury. We might, with the same propriety, recommend kali nitras as a remedy in every inflammation, because it is efficient in the treatment of laminitis ; or opium, because of its indispensable value in peritonitis, as to claim an indication for aconite in every disease where there is an elevation of temperature. Had the author of the article in the *Journal* copied more fully from "Ringer's Handbook of Therapeutics," his production would have contained fewer errors than it does, and would be of more value to the profession for which he wrote than it is. On page 396, Ringer says : "Sometimes, even a small quantity of the medicine (aconite) excites irregular heart action. Whether increased or lessened in frequency, the pulse *always* loses strength, showing retardation of the circulation ;" while Mr. A. quotes Dr. Fothergill as saying : "Aconite paralyzes the heart of frogs, arresting the contractions in the diastole."

Who, then, would administer aconite in that stage of pneumonia where the heart's action is already very weak, and there is imminent danger of the formation of the fatal heart-clot ? Or, who would give it in typhoid influenza, where there is a temperature of 107° F., pulse beating at 80 or 90, and so weak as hardly to be felt, while prostration is so great that the patient can scarcely stand ? The fact of the matter is, and it should be patent to every one, that in administering aconite, like all other remedies, it needs diluting with common sense ; and I think our unknown friend will find a much safer guide for the use of sedatives, in the pulse than he will in the thermometer.

A NEW USE FOR THE NEEDLE OF A HYPODERMIC SYRINGE.

BY A. LARGE, M. D., M. R. C. V. S. L.

A week ago, I was called at night to a case of constipation and flatulent colic, produced by cut hay and corn meal. The animal was enormously distended, respiration labored, and every symptom of approaching death by apnea, unless speedily relieved. I have not the fear

that some have, of making slight wounds of the peritoneum of the horse, so decided to puncture the colon—enterotomy as called by some. Not having an aspirator, nor even a trocar and canula handy, but my largest hypodermic syringe and needle in my pocket, with the latter I perforated the colon at its most prominent part in two different places, letting free a large amount of gas, and giving great relief, then following with the usual treatment to arrest further fermentation. There has not been the first unfavorable symptom, not even the slightest amount of local soreness from first to last, the animal, at present writing, being quite well.

CASTRATION OF CRIPTORCHIDS.

BY E. MINK, V. S., ROCHESTER, N. Y.

To the Editor of the AMERICAN VETERINARY REVIEW:

SIR :—With a feeling in common with many others, that the Veterinary Profession had met with a soft impeachment from members of its own household, I noticed the fulsome praise that was lately bestowed upon Mr. J. C. Miles of Charleston, Illinois, (not only by Wilkes *Spirit of the Times*, but also by Veterinarians of good repute), as a marvelously skilful operator in the specialty of castrating cryptorchids. The wonder and originality, which is attached and attributed to his operations, indicates a considerable lack of veterinary knowledge, as well as a humiliating concession that the veterinary profession lacks operators of originality and boldness,—which in fact is not the case, and is an injustice to the veterinary profession, by withholding the facts and credit, due to some of its members for the originalty, and to others for putting the system in practice of removing testicles from the abdomen of the horse, by way of the abdominal ring, inguinal canal and scrotum. I have no disposition to withhold from Mr. Miles any credit that may be due him for originality, if he never heard of the method before he commenced the practice of it. I gladly concede, that much credit is due him for putting the system alluded to in extensive practice, and by so doing, contributing his share of proof, that it is not so dangerous to castrate cryptorchids in the manner described, as in other methods which have occasionally been resorted to, and that the danger of this method is not so great as to forbid its general practice.

Mr. Miles called on me a little over a year ago, when he claimed originality for his method, and I then informed him that I was aware of the fact, that a method similar to his own had been practiced for some years, by that learned, accomplished and practical, but modest Veterinarian, Prof. James Law, of Cornell University. It will be noticed on referring to the circulars of Mr. Miles, that the first year in which he refers to numbers and success was in 1874. Whether he practiced it before that I do not know, but I do know that Prof. Law practiced it in 1870, and am informed that he has practiced it for at least eight years, quite extensively and with satisfactory results.

Nearly three years ago, I asked Mr. Law if this method was original with him, I think his answer was that he operated in the manner alluded to before he heard of it from any other source, but that he afterwards read of its having been practiced by others. He was inclined to think that it was first performed by Danish Veterinarians. In your last number of the *Review*, you give accounts of its having been performed by others, and of one Mr. Parret, a Frenchman, who made a specialty of operating by this method.

These facts show the superlative folly of the excessive laudation which is lavished upon Mr. Miles.

One effect of such fulsome praise is to increase the egotism, vanity and conceit, of which he was nearly full to repletion, before he received it. Here is a man so filled with charlatanism, that he sings his own praises wherever he goes. He is loud in proclaiming at all times, on all occasions, and in all places, that he can spay cows, and castrate ridglings better than any other man in America can do it. Yes, he even goes further than this, he offers \$500 to any man who will meet him, and do the work as well.

But even this offer is not sufficient to satisfy him, that he has proclaimed enough to satisfy the world of his immense skill, usefulness and superiority, and so he goes further with no apparent fear of faring worse, and dares any man to make him half that offer.

Is this the kind of man for regularly educated Veterinarians to indorse and cover with certificates? Is this the kind of man for any one who professes to be guided by a proper code of Veterinary ethics to indorse? Why, what have we here! Here we have Veterinarians, from the principal of a college and from an editor of one of the best Veterinary journals known, on down to the Veterinary wasp of Wilkes' *Spirit*, recommending to the world this boasting specialist, who has no regard for any

code of ethics, as the operator who overshadows all others in the specialty of castrating cryptorchids.

Did ever a charlatan before get a greater send-off than this Mr. Miles has received from members of high standing in the Veterinary profession. We think not.

VARIETIES AND NEWS.

AMERICAN VETERINARY REVIEW.

We hail with unfeigned pleasure the advent of a new literary venture in America, in the form of a VETERINARY REVIEW. The time had certainly arrived when our colleagues on the great and enterprising Continent must bestir themselves, and find a means of testifying to their existence and their progress, as well as a medium by which to promote their welfare, express their wrongs and obtain redress. * * * From the manner in which the two numbers have been presented to the public, and the excellence and interesting character of their contents, we may safely predict a full measure of success to our young contemporary. It has our very heartiest good wishes; and we earnestly hope that its influence, in promoting professional advancement in America, may be great, durable and unrestricted. We have now three veterinary journals in English-speaking countries—not long ago there was only one—and believing, as we do, in the value of healthy competition and generous rivalry, not less than in the wide diffusion of useful knowledge, we give a warm welcome to this transatlantic bond of fraternity. We allude thus lengthily to the AMERICAN VETERINARY REVIEW, in order to testify to the high estimation in which we hold it, and to draw the attention of Veterinary Surgeons in this country to the valuable addition it makes to our scanty literature. It is well worthy of patronage by the Veterinary profession in England as well as in America.—*Veterinary Journal*.

FRENCH KNOWLEDGE OF AMERICAN VETERINARY SCIENCE.

America has, at divers epochs, attracted numbers of European Veterinarians, and even often able men, who thought that they would find better opportunities than old Europe could afford them. We could

name several of them—French, German, English—who went to the United States and found there what they expected. If good positions are plenty in the New World, by opposition *the domestic animals* have yet but little value, and the services rendered by the Veterinarians are not as yet sufficiently appreciated all over the country. This, however, will soon take place; and though our information is very incomplete, we are able to say that Veterinary Science is taking, in North America, a great development, and that soon it will be a centre of light which will have to be taken into consideration in the statistics of progress. Not only are there Veterinary Colleges in New York (founded, in 1846, by Cumming), in Boston (founded, in 1848, by Dadd), and, perhaps, in other cities, but there are also large, free Veterinary Associations, like that established in Philadelphia in 1856, which, while they try to elevate the profession, and obtain for it certain rights and privileges, stimulate the zeal of their members by encouraging their work and the publication of their observations. Not only does the association possess a museum and a library, but it publishes also a journal which, as yet, seems not to be known in Europe. In Boston, Dadd publishes also a journal.—(*Dictionnaire de Darboval*, by Zundel, page 869, 3 vol., 2d part).

PRIZES OFFERED BY THE U. S. VET. MEDICAL ASSOCIATION.

We would remind our readers that prizes are offered by that Association for the best papers treating of any Veterinary subjects, presented at the next annual meeting of the Association in September. The papers are to be headed by a motto, accompanied by an envelope with the same motto, and containing the name and address of the author. All papers are to be delivered to the President of the Association, on or before the 15th of July of this year.

VETERINARY HONORS.

Professor Chauveau, the distinguished Veterinarian, Director of the Lyons Veterinary School, Member of the Institute and of the Academy of Medicine of Paris, has, by a special decree, been appointed Professor of Experimental and Comparative Pathology to the Faculty of Medicine and Pharmacy of Lyons. The two professions will gain much by the appointment of Professor Chauveau, whose name and deserved reputation is the subject of admiration of all interested in pathological investigations.

A VERY SMALL HORSE.

By W. J. Coates, D. V. S., House Surgeon, American Veterinary College.

On May the 7th, a sorrel mare, 8 years' old, about 11 hands high, entered the Hospital of the American Veterinary College for a fracture of the ilium, at the neck of the bone. She was placed in slings and kept quiet. Some two weeks afterwards, as one of the House Surgeons was making his visit before retiring, at midnight, he heard her struggling, and on being called by him, I found the little beast standing, with her slings all torn, and behind her, lying on the bed, a little filly, enveloped in the placenta, with the head sticking out. The envelopes being torn away, the little one was assisted to get up, and a few hours afterwards was found quietly and heartily sucking her mother. At a week old she was 24 inches high and weighed 38 pounds. Four weeks later, both went away from the Hospital in fine condition, the little mother, with her right hip slightly deformed, but anxiously looking for her little one, which was carried away by a man who took both away home.

RABIES IN AUSTRALIA.

Rabies has not hitherto been met with in Australia. The *Sydney Morning Herald* states that, during one of the hottest days of last week, however, a gentleman, who owned a valuable and hitherto quiet dog, observed symptoms of madness. The dog attempted to seize and spring upon a female domestic, who was only saved by the owner slamming the door against his entrance. Subsequently he tried to jump a fence and attack his master, but was unequal to the jump, the wall being too high. Having no doubt that it was a case of madness, the owner at once shot the animal. A case of similar nature was reported in a Victorian paper some time ago. Were these cases of rabies, or only diseases of the brain?—*Veterinary Journal*.

ENZOOTIC AMONGST LAMBS.

The magnificent flock of lambs at the Central Park has been losing many of its members by an enzootic of *tenia expansa*. One of them was brought lately to the American Veterinary College for treatment, but died almost immediately after its arrival. On *post-mortem*, the lungs were found healthy, with the trachea and bronchial tubes filled with

mucosities. The abdomen being open, the stomach and intestines looked apparently healthy, but the latter was filled, in the whole extent of the small intestine, with long tape-worms (*tenia expansa*), some of which measured about 15 feet in length. All the worms collected filled a 12 oz. graduated glass. The brain was slightly congested.

According to the statement made by the Superintendent of the Park, the lambs were sick two or three days, off their feed, taken now and then with convulsions, turning round in a circle, and, dropping down, would die.

COMMUNICATIONS RECEIVED.

A. Large, Brooklyn, N. Y.; D. McEachran, Montreal, Can.; A. Smith, Toronto, Can.; J. S. Duncan, Goderich, Can.; Dr. Osler, Montreal, Can.; C. P. Lyman, Springfield, Mass.; A. A. Holcombe, N. Y.; Tho. N. Perry, M. D., Providence, R. I.; James Law, Ithaca, N. Y.; F. S. Billings, Berlin, Prussia; E. Mink, Rochester, N. Y.

EXCHANGES.

Medical Record, N. Y.; American Agriculturist, N. Y.; Country Gentleman, N. Y.; Hospital Gazette, N. Y.; Chicago Field, Chicago; Western Agriculturist, Quincy, Ill.; Scientific Farmer, Boston, Mass.; Spirit of the Turf, Chicago; Live Stock Journal, Chicago.

AMERICAN VETERINARY REVIEW,

AUGUST, 1877.

ORIGINAL ARTICLES.

PERIOSTITIS.

BY A. A. HOLCOMBE, D. V. S., N. Y.

Inflammation of the periosteum is a disease of more frequent occurrence in cities than in country districts, and the fact is due to the kind of work performed, the character of the roads, and the continual exposure to contusions. Horses doing rapid track-work are liable to this disease, from the constant concussion to which the bones of the limbs are subjected, and more especially is this true of young horses, whose bones are not completely developed. Periostitis is either acute or chronic in character, the latter form occurring much more frequently than the former. When speaking of the periosteum, it is not customary to include that loose layer of cellular tissue, rich in cells, lying upon the periosteum proper, and containing an intimate network of blood-vessels; yet it is this outer layer of the periosteum which is the most frequent seat of primary inflammations, the deeper parts being less inclined to disease from the tendinous character of the tissue, and the scarcity of cells and vessels.

From the intimate relations existing between the articular capsule and the periosteum, the diseases of one readily passes to the other, so that there is often noted an intimate connection of the two.

Inflammation of the periosteum, begins with a high fever, and frequently is ushered in with a chill. The part affected is very painful and soon swells, the skin becoming tense and usually edematous. The affected limb is pointed or held up, every touch or jar seeming to cause intense pain. It is not difficult to diagnosticate this disease when the above symptoms are present, if we remember that idiopathic inflammation of

the cellular tissue covering tendons and muscles hardly ever occurs, and that when it does it seldom begins with so much pain. Where we have acute periostitis, it is not unusual to have osteomyelitis accompanying it, or we may have osteomyelitis independent of the periostitis, in which instance there will be the symptoms of periostitis, minus the swelling, which does not come on for several days. If the periosteum be examined at this period of the disease (third or fourth day), the blood vessels will be found distended with blood, and the tissue infiltrated with young granular cells, or in other words we have plastic infiltration. If osteomyelitis is present also, there will be extravasations into its substance, so that it assumes a purplish-blue tinge, instead of the normal bright yellow color. If proper treatment is used at this stage, complete recovery may be effected. If it is allowed to progress further, a part of the exudate upon the surface of the bone, becomes ossified, and the bone is left thickened. This thickening may be permanent, or it may be absorbed in the course of time. But all cases of acute periostitis do not have so favorable a termination, in fact a great percentage of them run on to suppuration. In these cases the joints in the neighborhood of the diseased bone swell and become very painful, the constitutional symptoms are severe, the patient eats but little, loses flesh rapidly, and seldom lies down. In about two weeks time pus will be detected, and puncturing of the abscess will give relief. If the pus has collected between the loose and the deeper layers of the periosteum well and good, but if it is beneath the periosteum proper the bone will be denuded, and the greater this destruction of periosteum the more severe are the symptoms. After the pus is evacuated the cavity may rapidly fill up, the soft parts adhering to the denuded bone, and ultimately forming a new periosteum. In other instances, the cutting off of the supply of nutrition to part of the bone, by reason of the destruction of the periosteum, necrosis will follow, but before the chronic inflammation of necrosis supervenes, acute suppuration will continue for a time, and it is during this period that various complications may occur, the most serious of which is pyæmia. Whenever a patient in the above condition is found with fever they are in danger.

The osteomyelitis which accompanies acute periostitis so often, may also terminate in suppuration, and if the disease is diffuse the entire medulla may suppurate. If extensive suppurative osteomyelitis accompanies suppurative periostitis, death of a considerable part of the bone must result, and if the suppuration becomes putrid in character, septicaemia will be likely to supervene.

The articular inflammation spoken of above usually terminates favorably, the serous effusion into the joint being reabsorbed as the disease of the bone subsides, although the joint may remain permanently enlarged and sometimes stiff. Fortunately this acute form of periostitis and osteomyelitis, is much more rare than the chronic form of which we see so much in veterinary practice. The symptoms of chronic periostitis are slight pain, some swelling of the parts around the diseased bone, pressure causing severe pain, and leaving the impress of the fingers evident. This form of periostitis unless cut short will end either in ulceration of the surface of the bone (caries), or in the deposit of bone-salts upon the surface. Chronic inflammation of the periosteum, may last for months or even years, and subside as gradually as it began. Microscopical examination shows a distention of the blood vessels and plastic infiltration of the loose, or outer layer of the periosteum. If there be present also superficial chronic ostitis, the pain will be greater than where periostitis occurs alone. According to Billroth, the deposit of osseous tissue, which takes place upon the surface of the bone, as a result of chronic periostitis comes first from the bone, and as the deposit proceeds outward, the periosteum assists in the deposition of the calcareous salts, and hence plays only a secondary part, instead of being, as was formerly supposed, the only tissue engaged in the new formation.

The treatment of acute periostitis, must be severe and resorted to early. The part of the limb affected, should be well blistered with cantharides ointment, or painted with strong tincture of iodine, and the animal allowed to rest in slings. Purgatives and diuretics will do good by acting as derivatives. If there is suppuration with continuous fever, the application of cold will relieve the pain. In the treatment of chronic periostitis and superficial ostitis, entire rest is the first important step to be enjoined, and as our aim in treating is to induce resolution, the use of antiphlogistics, and the application of cold do but little good, and are really a waste of valuable time. Strong counter-irritants should be resorted to at once, as firing, blistering, &c.

If suppuration has taken place, the pus must be let out with the scalpel, and the wounds treated as is commonly done. If caries is present, the diseased bone tissue must be removed, and the cavity allowed to fill up with healthy granulations, after which the healing of the wounds of the soft tissues will be easily effected,

[TO BE CONTINUED.]

ANATOMY OF REGIONS.

Translated from Peuch and Toussaint's, Précès de Chirurgie Vétérinaire.

BY A. LIAUTARD, M. D. V. S.*

FIRST SECTION.—THE HEAD.

Taken as a whole, the head represents, in domestic mammalia and specially in the large ones such as the horse and the ox, a kind of four faced pyramid, attached to the neck by its base and whose apex corresponds to the lips.

The great axis of the head is ordinarily inclined, forming an angle of 45° with the horizontal plane, but this position may be modified by different causes, such as a rapid gait or the act of sleeping. For the sake of study, we will consider it as being nearly vertical, and thus will recognize in the head an *anterior*, *two lateral* and a *posterior* face, in which we will examine the different regions of which it is composed; the *base* of the head is united to the superior part of the neck, the lips which form its *apex* will be examined in the anterior and posterior faces.

This division seems to us better than that by which the head is divided into a cranial and a facial portion, as done in descriptive and in topographical human anatomy; for the small extent of the cranium in the domestic animals and its connexions with the face, would render a division of that kind somewhat obscure and rather unnatural. We will, however, have occasion to show the limits of the encephalon when speaking of the regions which surround it, and when describing it.

CHAPTER I.

ANTERIOR FACE OF THE HEAD.

Its boundaries being very natural need not be indicated, its longest diameter extends from the occipital protuberance to the point of the nose, its largest transversal dimensions exists on a level with the orbits, and it diminishes going towards the nostrils. The whole of its middle parts forms a straight line. Those two extremities, the protuberance and the superior lips, look backwards. Like all the parts occupying the medium line of the body, the anterior face of the head is perfectly sym-

* See Editorial.

metrical. It presents three regions : *fronto-parietal*, *nasal* and *superior labial* ; we will also describe in it the *olfactory apparatus*.

SECTION 1. FRONTO-PARIETAL REGION.

Having for base the anterior face of the frontal bone, and the portions of the parietal, situated between the two crests, this region has the form of a lozenge ; the superior angle of which runs up to the origin of the mane (the fore-lock), the inferior is resting upon a line uniting the internal angles of both eyes, and limiting the nasal region ; on the sides the fronto-parietal region is bounded by the temporal and orbito-palpebral regions.

The forehead has more or less extent ; its width and height are characteristic beauties of pure breed, they give to the head a square form, the finest and the best, as indicating a larger development of the brain. In animals with square forehead, the fronto-parietal surface is perfectly flat ; but, it is often found convex. This is a defectuous character, when persisting in adult animals ; its results of a peculiar condition of the frontal fissures. In young subjects, the forehead, on the contrary, always presents a convex surface, so much more developed as the animal is younger.

This is due to the small development of the facial part of the frontal bone, and of the bones of the face, compared to those which form the cranial walls. The fissures properly speaking, do not exist in the foetus, and begin to show themselves in the young animal, only after a certain age.

The skin of the frontal region is little movable ; it is furnished with short hairs, which ordinarily form a radiated spot in the middle of the forehead.

Between that tegument and the bone, there is only a fibrous layer ; somewhat thick, representing the epicranial aponeurosis of man, it is strongly adherent to the periosteum, and attached to the skin by a very thin fascia, and thus is easily isolated.

The skeleton of that region is formed at its superior parts, by the portion of the parietal bones included between the parietal crests, and by the whole surface of the flat portions of the anterior face of the frontal. In the thickness of this bone, we find the two frontal sinuses, cavities hollowed between the plates of the bone, entirely in front of the cranium, and separated from each other, by a bony lamella, almost median and always imperforated. Each frontal communicates with the corresponding maxillary sinus, by a wide opening at its inferior wall.

To be sure to penetrate to the cavities of the frontal fissures, trephining must be done upon a line a little superior to one which would unite the internal angles of both eyes. An opening made on one side of the median line, penetrates on the corresponding sinus only; if both cavities are to be open, it is indispensable to trephine on each side of the median divisions, or to use a very large instrument, and apply it on the septum dividing the two sinuses.

The *blood vessels* are of little importance, as they generally are in median regions. Only small arteries, ramifications of the ascending terminal branch of the glosso-facial, and of the temporal arteries are found; the veins empty into the angular of the eye and the anterior auricular; the nerves come from the anterior auricular plexus.

DIFFERENCES.—In the *ox*, this region ought to be called the *frontal*, as it is the bone of that name only which forms its skeleton, the parietal is found further towards the base of the head. Much wider than in the horse, it occupies more than the two thirds of the anterior face of the head, and descends down to a level of the anterior half; it also comprehends the horns, whose form and dimensions vary considerably, according to the age, the sex and the breed of the animals.

The horn rests upon a shorter bony rod, of same form and direction. This rod is rough, perforated with holes, continued on the external surface by fissures, it is hollowed internally by cavities communicating with the sinuses of the anterior face. These surround the cranial cavity, in such a way that the trephining of the frontal in cattle always opens into these cavities, no matter on what part of the bone the operation is performed. These sinuses are in connection with similar cavities of the parietal, occipital and sphenoid bones. They do not communicate with the superior maxillary sinus, but with the nasal cavities proper, by four foramina situated under the great ethmoidal volute. Girard was the first to see that three of these, communicate with peculiar sinuses, isolated from each other, and surrounding the orbits; he gave them the name of *orbital sinuses*.

In *sheep and goats*, that region is relatively smaller than in cattle; it is very convex, the frontal does not reach as far as the base of the head, and the fissures do not extend beyond the superior border of the bone. The horns may be absent, and in their place a kind of bony enlargement exists—if there are horns, they have a spiroïd or cork-screwed form peculiar to sheep; the goat carries the horns upwards and bent backwards and outwards. The form may vary considerably in the two

species of animals, according to the different breeds. They are often missing, and more so in females than in males.

The fronto-parietal region of the pig, is considerably elongated from upwards, downwards—the fissures exist in the thickness of the two bones.

In *carnivorous*, the region corresponding to the frontal bone, occupies about the middle of the anterior face of the head. In short head breed it corresponds only to the frontal; the temporal regions, enormously developed, unite above the frontal, and bound it above and on the sides; the frontal portion of the head stops a little above the inferior border of the orbits.

SECTION 2.—NASAL REGION.

This is limited superiorly by the frontal region, on the sides by the orbito-palpebral and alveolo-labial, downwards by the point of the nose. It has for base the nasal bones, the anterior portion of the superior maxillary bones; all the part extending from the frontal region to the nostrils is called *superior nasal*, or of *the chanfrin*; the *nostrils* will be described separately.

a.—SUPERIOR NASAL REGION, OR OF THE CHANFRIN.

Much wider superiorly than inferiorly, it is flat in its middle, which represents a kind of elongated V. with the opening turned upwards, the sides run smoothly obliquely outwards, so as to unite with the lateral faces of the head.

The form of that region varies much, according to breed, and even individuals; it is in intimate co-relation with that of the forehead. It ought to be straight and wide. Very often a depression, which gives to the head a peculiar aspect (*rhinoceros head*), is found on a point where the nose piece of the halter passes; this form may diminish the vertical diameter of the nasal cavities, but becomes of some importance only when excessively developed. The *skin* of the nasal region is more movable and loose inferiorly than superiorly. Through it, in the whole extent of the region, one can readily feel and well define all the different parts situated underneath, and thus all deformations, callus, osteitis, &c., can be easily detected. Exactly in the middle of the region, the suture of the two nasal bones, always incomplete inferiorly, is easily detected.

On each side of the branches of the V, representing the median part, one will observe a wide depression, slendering backwards, and continued along the ascending apophysis of the small maxillary bone; on the outside border of the groove, a longitudinal movable promin-

ence is found. This is formed by the fleshy portion of the super-maxillo labialis muscle,* much developed in the middle third of the region; it afterwards diminishes and terminates by a linear sailly formed by its tendons, which can be followed to the point of the nose.

In animals whose skin is fine, and when by artificial excitement the circulation is accelerated, the terminal branches of the external maxillary vein are plainly seen under it. Under the skin there is a thin aponeurotic layer. The most superficial muscular layer is formed by the supernaso-labialis,† rising from the nasal bones by a thin and wide aponeurosis, united posteriorly to the lachrymal muscles, and running towards the commissure of the lips, where it terminates by two branches through which passes the pyramidal‡ muscle of the nose. A second layer comprehends the super-maxillo-labialis,§ situated upon the sides of the region; its tendon, which continues forwards the fleshy part unite with that of the opposite side, widening to form an aponeurosis which enter into the formation of the superior lip, which by its contraction it raises and turns upwards.

BLOOD VESSELS AND NERVES.—The *arteries* are the two terminal branches of the glosso-facial; one ascending towards the nasal angle of the eye, the other descending towards the false nostrils; they are intercrossed with their satellite veins, which, being a little more superficial, pass to the surface of the super-nasolabialis muscle, while the arteries run underneath.

A very large *sensitif nervous fasciculus*, the superior maxillary nerve (superior branch of the trigemini), runs outside the maxillary foramen, and spreading widely, follows the external face of the maxillary bone, mixed up to the inferior arterial ramifications. It is very easy to recognize the spot where the maxillary foramen is located; it can be felt under the skin, at about $1\frac{1}{2}$ to 2 inches forward of the apex of the maxillary spine. Some branches of the facial nerve, whose position is not absolutely fixed, and intermixed with branches of the superior maxillary, brings on power of motion to the muscles.

DIFFERENCES.—The chanfrin of the *Ox* is straight, and shorter than that of the horse; it spreads slightly inferiorly towards the muzzle. The nasal bones are terminated by two points, and are quite movable; they support a cartilaginous frame, mingling with that of the turbinated bones.

* *Nasalis longus labii superioris* of Percivall.

† *Levator labii superioris alaeque nasi* of Percivall.

‡ *Dilatator naris lateralis*.

§ *Nasalis longus labii superioris*.

In *Sheep*, the region is convex in all directions.

In *Dogs*, it is more developed inferiorly than superiorly. Its length varies in the different breeds, its bony frame does not extend to the nose, but for a length of about 1 inch or $1\frac{1}{2}$ inch, the superior border of the septum nasi only is felt, thus the inferior portion of the nasal fossa has a certain mobility—the whole region is very vascular.

b.—NOSTRILS.

These are the external openings of the nasal cavities. In horses, because of the length of the soft palate, it is the only way through which air can reach the lungs.

The nostrils are openings, elongated from upwards and downwards, and slightly oblique inwards, so as to be nearer to each other towards their lower extremity. They have two lips or borders, and two commissures.

The *internal border* is nearly straight, and is covered superiorly by the *external lip*—this one is strongly convex, and prominent over the surrounding parts. The *superior commissure* is formed by the external lip which curves itself inwards, and then forwards so as to cover internally the internal border. This commissure presents a peculiar diverticulum of the nasal cavities, cul de sac, called the *false nostril*. The *inferior commissure* curves slightly inwards; it presents, at the point of union of the skin with the nasal mucous membrane, the orifice of the *nasal gutter*, inferior opening of the lacrymal canal.

This form of the nostrils, which is that of the animal at rest, is considerably modified during locomotion, or in any other state where respiration is rendered more active. Then the opening increases specially by the spreading of the internal lip, which becomes very concave, and exposes the red internal mucous of the nostrils.

The skin of this region is strongly adherent to the parties underneath. It is covered with abundant short hairs, intermixed with others, long, coarse and rough, true organs of feeling. The interior of the nostrils is also covered with hairs, stiff, but in smaller number. They protect the nostrils from the entrance of dust or foreign bodies, while allowing air to penetrate through them.

When the skin is removed, which requires much care, one finds round the nostrils a strong fibro muscular tissue, perforated, here and there, by the bulbs of the thick hairs already alluded to. There is but one layer of muscular tissue, formed by the terminal fibres of the trans-

versalis nasi,* middle, anterior and small super-maxillo nasalis† inwards, internal branch of the super-naso labialis,‡ and pyramidal of the nose§ outwards.

As annexes of the nostrils we must mention the false nostril, a cul de sac occupying the space situated between the nasal spine and the ascending branch of the small maxillary bone. This pouch has no special uses, it is lined by a black mucous membrane, filled with sebaceous glands.

The nostrils of the horse are kept open by an incomplete cartilaginous frame, formed by two small apparatuses, one for each opening. These cartilages, upon which the muscular fibres are attached, have the form of two commas resting upon each other by their convexity; the wide extremity is superior; it corresponds to the upper part of the internal lip, while the median portion forms this same border. The inferior extremity, narrow, pointed and curved outwards, is situated deeper than the rest of the cartilage, and occupies the inferior middle of the external lip, which, therefore, has only an incomplete cartilaginous frame.

The blood vessels are the last ramifications of the terminal branch of the *glosso-facial*. The nerves are furnished by the facial to the muscles, and to the ligaments by the superior maxillary.

DIFFERENCES.—In the *ox* the nostrils are very different from what they are in horses. They are smaller and, above all, less movable, elongated from outwards inwards, their opening presents the form of a comma whose point is external and slightly curved backwards and upwards. The skin, hairless, has the same structure as that of the muzzle and superior lip. Round the summit of the opening hairs are very fine and short. There is cartilaginous frame only on the superior wing, and even it is rudimentary.

The *dog* has nostrils placed at the very extremity of the head, bound superiorly by a transversal, wide projection. Their wide part is divided by a movable septum, on the middle of which there is a vertical fissure; the point turned outwards turns backwards and upwards. The skin is hairless and rough. The cartilaginous support is formed by two widened elongations of the nasal septum, which occupy only the most internal part of the superior border of the nostrils.

The nostrils of the *pig* mingle with the *snout*. They occupy its

* Dilatator naris anterior of Percivall.

† Nasilis brevis labii superioris.

‡ Levator labii superioris aliaque nasi.

§ Dilatator naris lateralis.

inferior region, are always very small and round. The bone of the snout is their base, as well as two cartilaginous pieces, thick and wide, which from that bone run to the cartilaginous appendages of the inferior turbinated bones, and are continued with those.

[TO BE CONTINUED.]

RINDERPEST.

ITS PROPAGATION.—No. 1.

[*From the National Live Stock Journal, Chicago, Ill.*]

The recent extension of the rinderpest in Western Europe has raised a well-founded apprehension of its importation into the Western Continent; and as our Treasury officials have manifestly failed to appreciate the situation, and have issued orders calculated only to beget a false sense of security, it seems well that the conditions which favor the progress of the plague should be plainly stated, so that our readers may have an intelligent conception of the situation. With a value in live stock approximating closely to \$2,000,000,000, and with an annual export of animals and their products amounting—as per last year's statistics—to \$120,437,718, we can hardly suppose that the financial department of our Executive can be indifferent to the urgent need of protecting our flocks and herds against the ravages of plagues of foreign origin; and it seems, therefore, that their failure must be charged upon ignorance rather than want of good will. But this view of the matter renders the system only the more preposterous, which intrusts the present and prospective interests of this vast source of national wealth—this one solid foundation of all agricultural prosperity—to the hands of a mere financier, who is utterly ignorant of the exotic pestilences by which it is continually threatened. In purely financial matters, or in those which deal only with inanimate forms of wealth—lands, mines, railroads, manufactures, and the like—a false step may be redeemed with comparative ease; but in the case of pestilence in live stock, the germs may be speedily diffused over our boundless States and Territories, and challenge the most strenuous efforts and liberal outlay of the nation to extirpate them. A sudden loss of material wealth by governmental mismanagement can be fairly appreciated, and its various bearings, and the duration of its

effects, satisfactorily estimated ; but the failure to exclude the *plague-germ* implies the steady and constant increase of the poison, by myriads at each successive generation, so long as victims are available for destruction ; and unless ruthlessly stamped out, it will be far more widely spread, incomparably more destructive, and have far better prospects for perpetuation at the expiration of a decade, or a century, than at the end of the first year. If agriculturists throughout the length and breadth of the land could be aroused to a sense of the vital importance of this subject, and to pledge every one of their Congressional representatives to use his best influence to effect an improvement, we might soon hope to have legislation on this subject emanating from an intelligent source, our shores safely guarded against the importation of exotic plagues, and successful efforts inaugurated for the extinction of those that have been already introduced.

NO SPONTANEOUS GENERATION IN EUROPE.

We know nothing of the primary origin of rinderpest, nor the conditions in which it is generated *de novo*. In the last century its native habitat was supposed to be the plains of Hungary ; later, the steppes of Moldavia and Wallachia were charged with generating it ; still more recently, it has been referred to the marshy spots in the extensive Kirghiz steppes ; and now, Councillor of State Unterberger, the veterinary professor at Dorpat, who was charged by the Russian Government with the investigation of the subject, with a view to the definite extinction of the pestilence, reports that at no point in European Russia can the disease be found to arise spontaneously, and that the same remark is probably true of the Asiatic portion of the empire. The malady is known among the Tartars as *tchouma*, their name also for a malevolent deity ; and as this name has been retained by nearly all adjacent nations (Russia, *tchouma* ; Poland, *Dzuma* ; Persia, Afghanistan and Turkey, *taoun* ; Thibet, *chooneah*), it seems to point to Tartary as its probable source. In China, where it prevails continuously, it has another designation, *low peng*—belly sickness—a nominal distinction which may imply an independent origin of the disease in that country.

Into the neighborhood of Lassa, Thibet, it is yearly imported from the west by yaks and sheep sent for salt ; and in Hindoostan, though widely prevalent, it seems also to have an exotic origin. All this is only important as showing that the malady has its origin and point of departure in Central or Eastern Asia, and that, in spite of this, it has prevailed for centuries uninterruptedly in Europe, and has spread more or

less widely, according to the freedom of movement in live stock. The natural corollary is, that having been thus permanently settled on the European continent, where it does not originate spontaneously, it may be domiciled and perpetuated with equal facility on the American, and may prove quite as difficult and expensive to eradicate.

DIFFUSIBILITY OF THE VIRUS THROUGH THE AIR.

The contagion of rinderpest is remarkable in this, that it does not spread very widely through the atmosphere. That the microscopic particles which bear the contagion arise and float upon the atmosphere, there can be no doubt, and that every diseased animal, every carcass, and every fresh product of such carcass, is surrounded by a virulent atmosphere, which will infect all susceptible subjects within its area, is as certain; but this infecting condition of the air is comparatively circumscribed. With a favorable wind and a damp atmosphere (the most favorable conditions), KORBER, STEPANOFF and POZOCKOW found that it did not exceed 800 metres (yards). Prof. HAYNE found that it varied from 30 to 1,000 metres. ABILGAARD sets it down at 108 metres; GERLACH at 40 metres; and ROELL, JESSEN, HAUPT and others at from 10 to 40 metres. Where the atmosphere is still, the shorter distances are nearest the truth; thus, REYNAL mentions that a great number of stables kept healthy within 40 and 50 metres of a badly infected one during the Parisian epizootic, in 1871. In London, in 1866, the experimental stables at the Albert Veterinary College were separated by a wall only from a large dairy, and yet the cows in the latter preserved good health for over a month. More than this, healthy and diseased animals were kept in stables placed side by side, and with their doors opening close together into a confined yard, and the same attendant regularly feeding first the healthy, and then the diseased, yet the former escaped for over a fortnight, until, indeed, a visitor went straight from the sick to the healthy, and infected them.

It must always be borne in mind that the virus may easily be carried long distances on dry hay, paper and other light objects blown by the wind, as well as on the feet of men, quadrupeds, birds and perhaps even insects; but its diffusibility through the air, without any additional medium, is by no means extensive—a fact which should inspire us with the greatest confidence in the measures at our command for checking its progress, and should be our warrant for carrying out these measures with the most unflinching stringency and impartiality.

VITALITY OF THE CONTAGION.

Though easily destroyed when its minute atoms are brought into intimate contact with the air—as in the cases above related—the same does not hold good in conditions in which the materials are closely packed, and where the air is excluded. CAMPER and VIC D'AZYR successfully inoculated the virus from an ox that had died of rinderpest, and had been buried three months. WEISS inoculated the virus successfully after it had been preserved for six years; and HERING also indorses the idea of the vitality of six-year old virus. It is not stated how such virus was preserved, but it was doubtless in capillary tubes, from which all air was perfectly excluded—a condition in which virulent fluids may be preserved almost indefinitely. Thus REMPACH and SERGEJEW preserved the virus for over a year, and then inoculated it successfully. On the other hand, ADAMI has shown by experiments that a three days' exposure in thin layers to the open air and the rays of the sun, at ordinary temperatures, will render it impotent. FRANCK found that the discharge from the nose placed upon a woollen cloth and exposed to the air for six days, was no longer infecting. MUNNICKS found that this material placed in a bottle simply corked, was inactive on the fourth day, having commenced to putrify; its virulence persisted to the eighth day in a hermetically-closed vessel, and to the twelfth day in a vacuum. JESSEN who made a special study of this subject for the Russian Government, has stated that blood and secretions from the eyes preserved in tubes, or between plates of glass, were still infecting on the seventeenth, the twentieth, and in one case, on the thirtieth day. This last case, it will be observed, is an instance of preservation away from contact with the air, and does not in the least invalidate those of ADAMI, FRANCKS, MUNNICKS, etc. It is well established, that when exposed to air, frequently renewed, in microscopic particles, or thin layers, and at ordinary temperatures, the poison is rapidly decomposed and rendered non-infecting; whereas, when air is excluded, it may be preserved active for an indefinite period.

A low temperature serves only to preserve the potentiality of the poison, by retarding decomposition; and frozen products have often conveyed the disease when thawed out. AMPACH records the case of manure from diseased cattle, spread upon the fields in January, and which infected the oxen used to plow in it, after the frost had left the ground in April. A high temperature is, however, fatal to its power, and in experiments, 131° Fahr. has been found to render the matter

harmless. Ordinary variations of temperature above the freezing point, and the varying humidity of the atmosphere, have so little effect on the poison, that their influence need not be considered. We can shut our eyes, then, to these, considered as agencies affecting the propagation of the disease, and take into account extreme high and low temperature only as affecting the virulence of animal products—such as skins, wool, flesh, fat, etc.—the high temperatures rendering such articles safe; the low serving only to perpetuate their virulence.

In the New World we are happily safe from any danger of infection through the atmosphere, and may thus concentrate our attention on the various modes of possible infection through diseased animals, or other objects upon which the poison may be preserved.

IMPORTED STOCK.

The danger attending importation of cattle from infected countries is so patent to all that it would be absurd to insist upon or illustrate this. But as it is on this important particular that the treasury circular of March 22d especially comes short, it will be necessary to say a few words on the subject. The first sentence of the circular formally prohibits the importation of cattle, the last sanctions their importation when *blooded*, and accompanied by a consular certificate of non-infection. Now, a consular certificate is in some sense a precaution, as it presumably, states the number, sex, age and colors of the animals shipped, and affords a ready test as to whether any have perished on the way; but as regards proof of *non-infection* when shipped, it is no better than so much waste paper. The infection in such cases is usually contracted after the start, as from railroad cars, strange stables, infected quays or ships, infected fodder, and the like. In reality, the fact of importation is as perfect a guarantee as any consular certificate can be, as no purchaser would consciously start across the Atlantic with infected animals. But what are the facts with regard to former importations of disease here and elsewhere? The introduction of lung fever into the British Isles, in 1839, was made in *blooded* (Dutch) cattle imported by a friend of the British Consul at the Hague, for the improvement of his home stock. The same disease invaded Sweden and Denmark, in 1847, by *blooded* (English) cattle; Norway, in 1860, by *blooded* Ayrshires; Oldenburg, in 1858, and Schleswig, in 1859, in each case by *blooded* Ayrshires; Austria, in 1858, by a *blooded* (Shorthorn) English cow; Brooklyn, in 1843, by a *blooded* Dutch cow; and Boston, Mass., in 1859, by Mr. Chenery's celebrated *blooded* Holsteins. The *foot and mouth disease*,

which swept over Canada and some of our Northern States in 1870, was imported in two first-class *blooded* Shorthorns, the property of Mr. Cochrane, of Compton, which certainly started sound, were infected in process of shipping, and only showed the disease after having been two days at sea. It is quite needless to follow this subject, these instances must illustrate how vain is the idea that the careful selection of *blooded* stock is a sufficient guarantee of security, and how little we can rely on the best intentions of the importers as a safeguard. In no one instance above mentioned did the owners knowingly import diseased animals, and none could be more anxious than they for the extinction of the malady when its true nature had been discovered. Such instances show no want of care, judgment nor honor on the part of the importers; they merely show that protective measures, founded on the principle of allowing the embarkation of none but healthy stock from an infected country, are utterly inadequate to meet the end in view. To insure the exclusion of diseased animals, we must either exclude all animals without distinction, that are subject to the disease in question, and that come from an infected country, or we must have a clean bill of health for the voyage, describing every individual beast imported, a quarantine of a length proportionate to the period of latency of the disease to be guarded against (in the case of rinderpest one week), and a disinfection of the surfaces of the stock, and of all articles that may be landed with them.

SHEEP, GOATS, DEER AND OTHER RUMINANTS.—Rinderpest, unlike lung fever, is by no means confined to cattle. All ruminants are more or less susceptible to it, and no measures of prevention are reliable, in which this fact is not recognized. And here again, our treasury circular is sadly lame in its provisions. Sheep are referred to, not because they are liable to the disease, but because, like "horses and swine, they may be media for its communication." Then comes the statement, that "the department has no authority under the law to prohibit the importation of horses, sheep and swine"; and the suggestion that these "be examined by experts, and, if necessary, quarantined for a reasonable time." Here we must go back of the present Executive, and consider that state of things which makes no provision for the protection of our momentous live stock interests in case of a threatened invasion of pestilence. The government ought to have an expert as an official, or at least as a responsible adviser; and, above all, it should not be hampered by legislation nor the want of it, but should be invested with full powers to take whatever measures may be necessary to exclude all

foreign animal plagues. In this case of rinderpest, whatever is applicable to cattle is equally so to all ruminating animals imported from infected countries. We might adduce illustrative examples, but the fact of the susceptibility of these animals is so well known to veterinarians that these may well be dispensed with.

OTHER ANIMALS.—The rinderpest is not transmissible excepting to animals with multiple stomachs. Contrary to the opinion of some Canadian legislators, pigs are not susceptible to this pest. For centuries these have mingled with plague-stricken cattle in every country of Europe, but not a solitary instance of their infection can be adduced. A single occurrence has evidently started the misconception in question. In 1865, during the prevalence of rinderpest in the Jardin d'Acclimation, Paris, four exposed peccaries perished with what appeared to be unmistakable symptoms and *post-mortem* lesions of the disease. There is no good reason to doubt that these were genuine cases of rinderpest; but it must be borne in mind that this pachyderm is furnished with a deeply-divided stomach, altogether unlike that of the pig—a formation that closely allies him to the true ruminant; and his implication in an outbreak of the plague cannot invalidate the uniform experience of centuries as to the complete immunity of the hog. Swine, then, like other non-ruminating animals, may be completely exonerated from the charge of harboring the germs of rinderpest within them, and may be freely admitted after the whole surface of the body has been disinfected by washing with a solution of carbolic acid or chloride of lime.

[TO BE CONTINUED.]

EDITORIAL.

To all who are interested in Veterinary Medicine, the progress, that it has made for the past few years, cannot escape attention—that slowly but surely, this important branch of agriculture, has gone forward step by step towards advancement and full recognition, is a fact that no one can deny.

Truly we have not reached the height of perfection—truly one can, as our friend Prof. Law says, meet yet with a large number of men, “who will remove a bone spavin, ring-bone or splint of old standing, and leave the bone in its original smoothness and perfection; who will stop the growth of a ring-bone by cutting out its feeders in the fetlock pad: who will restore any sick cow to sound health, by boring the root of the horn with a gimlet, and rubbing in peppers and other irritants, or who will recuperate the ailing hog by removing unshed deciduous tooth which has become slightly stained with black,” etc., etc.—truly this number of quacks can be met with in every part of the country—but still the Veterinary Surgeon, the man of education, *self made*, or coming out of our schools, is rapidly taking his place amongst our people, as the one to whom the care of our valuable domestic animals can be trusted.

Veterinary schools have been established, and are in prosperous condition, and every year a certain number of educated men, come to fill up the ranks of the Veterinary practitioners—Veterinary Societies are here and there forming themselves, with those alumni of the different schools, and are bringing their quota of knowledge towards advancing the profession to which they belong. A Veterinary Journal representing the interests of the profession has been established, and has so far received the best support that any periodical of this kind could expect, in a country where regular practitioners are in the minority, and where humbug, quackery and imposture are in a large majority. All that has been accomplished within a few years, and to-day it seems to us that we ought to feel proud of all that has been done—but it appears also, that a great deal remains to do.

If we look upon the number of persons who are engaged in the practice of the treatment of domestic animals, we can divide it into two large classes:—1st, those who, regularly educated for the profession, and graduated in Veterinary Schools, are, by the fact of the education

they have received, and of the diplomas they hold, the true representatives of the Veterinary profession ; and also, those who, deprived of the advantage of a regular scholarship, have by their exertions, by their self studies and observations, brought themselves with honor to the same level as the regular graduates. 2d. Those who, ignorant and vulgar charlatans and unscrupulous empirics, are by cruel and absurd treatment, by exorbitant charges robbing the people of their money, and the poor beasts of their lives, after inflicting upon them the most fearful and unjustifiable punishment, under the false name of medical or surgical treatment.

It is true, that between the two classes, one might find a third one—a kind of bastard who belongs to both, while he belongs to neither ; that we may find between them, the graduate who covering himself of his garment of regular member of the profession, do not hesitate, to satisfy his own purpose, to impose upon a credulous public, by using all the means of the charlatan—but this one we may leave to himself. Give him rope enough, and he will unknowingly use it round his own neck.

Amongst the first class, we said, there is a certain number of well self educated gentlemen, men of good reading, of profound observation, men who would do everything to elevate the profession—and now the question has often come to us, is there nothing that the profession can do for them? They may now and then be found belonging to a Veterinary Society ; they may by time receive all the official recognition that the regular Veterinarian will obtain through his diploma ; they may, by their knowledge and talent, prove themselves equal, nay some times superior to the ordinary graduated practitioner, but still—there is a limit !—why? Because they are not what is commonly understood, as a recognized member of the profession.

But what could be done ?

Give them a recognition—put them on the same footing as we are. It seems to us that this is the next duty of the regular Veterinarian.

How to do it? is the question. But we think it could be done in the same way as the human Medical Profession has done for some of its irregular.

If we look amongst many of our States, we will find that each one possesses a number of regular graduates, sufficiently large to organize and form a State Veterinary Society. Could not the same obtain, from the Legislature of their State, acts of incorporation, granting them the power to deliver the Degree of Licentiate to all those who would apply

for such degree, providing they would submit themselves to certain rules and regulations as provided by a Board of Censors of said Society, or of the Society who represents, to a great extent, all the Veterinary interests of the country, the *United States Veterinary Medical Association*.

If this could be obtained—and we have reason to believe that there would be no great difficulty in it, if we can judge from what we know of our own State—if such was the case, what would be the result?—a large increase in the number of the *true* workers of the Veterinary profession, a full and well-deserved reward to many who, by a sense of bashfulness, or from some other cause, hesitate to ask recognition—a great step forward in the advancement of our noble art, and, we believe, a terrible blow to quackery and ignorance.

We offer these remarks merely with the desire of calling the attention of the American Veterinary Surgeons to what we consider but a step in the right direction, and hope to hear from many of our correspondents on this important subject.

ANATOMY OF REGIONS.

Our English Veterinary literature has for the last few years been considerably increased, thanks to the continued exertions of a few English Veterinarians, and principally, not to say almost entirely, of Mr. G. Fleming; and we feel it our duty to take example, and to try to give our quota towards it.

To that effect, as soon as the *Précis de Chirurgie Vétérinaire*, of Peuch & Toussaint, was published, it has seemed to us that a part, if not the entire work, would prove of great interest, and be beneficial to the American practitioner. We are glad to-day to announce that we have obtained from the authors of this excellent work the authorization to publish in the REVIEW the portion of the book which treats of the Surgical Anatomy of the Domestic Animals.

Offering, as this does, an excellent means of reference in cases of important surgical operations, it will be found by all practitioners, old and young, an excellent way of refreshing their minds in a study, which, practised but little when out of college, is of such importance in the successful performance of an operation.

We begin, to-day, the publication of this translation, and hope that it will prove interesting and advantageous to our readers.

TRANSLATIONS FROM GERMAN PAPERS.

HÆMOGLOBINURIA IN HORSES.

BY BOLLINGER.

[*Concluded.*]

Of the three important symptoms of this disease (hæmoglobinuria, albuminuria, and paralytic condition of the hinder extremities), the hæmoglobinuria (1) is regarded as the most characteristic. It is usually considered as hæmaturia (bloody urine), in which condition, however, the urine is never lake colored, and microscopically red blood corpuscles can always be found. In hæmoglobinuria, on the other hand, the filtered urine has a peculiar lake color, like red wine, and contains no red blood corpuscles, but soluble hæmoglobin—the substance forming the chief constituent of the colored corpuscles, which can readily be detected by the spectroscope. Franck was the first to draw attention to this fact; and to show that the destruction of the blood corpuscle and solution of the coloring matter did not take place in the urine but in the blood itself; thus proving a change in this fluid to be a primary step in the process. Reference is made to the interesting experiments of Ponfick, showing how this condition is produced after the injection of a certain amount of the blood of one species of animal into the veins of another. The foreign blood acts as a sort of poison, causing destruction of the red corpuscles, and freeing the hæmoglobin, which escapes in large quantities with the urine. So long as the amount to be excreted is not too large, the kidneys do not suffer; but if considerable, anatomical changes are produced in these organs, an inflammatory condition arises, with great exudation into the tubules, rendering further excretion impossible and death results.

(2.)—As is well known, not only hæmoglobin, but also tube casts, consisting of albumin, epithelium and granules, are found in the urine, indicating with certainty that an affection of the parenchyma of the kidneys exist—a desquamative nephritis or acute Morbus Brightii. Depending upon this and strengthened by the examination of the diseased organs, many observers regard an inflammatory state of the kidneys as the essential element of the disease; but this afforded no explanation of the accompanying hæmoglobinuria.

In very severe cases of Bright's disease, hæmorrhage from the kidneys sometimes takes place, but a primary albuminuria with consecutive hæmoglobinuria is as yet unknown. Our knowledge of the essential changes in the disease in question has been considerably advanced by the above-mentioned experiments, which have shown in the clearest manner that by certain means—the transfusion of foreign blood—hæmoglobinuria may be artificially produced, and in its turn excite an acute *Morbus Brightii*. So in this affection the desquamative nephritis may arise, not alone from the increased exercise of the function of the kidneys consequent upon the amount of hæmoglobin to be excreted, but the unknown “something” which produces the hæmoglobinuria disturbs, probably, the nutrition of the parenchyma of the kidney, as it does that of the liver and muscles.

(3.)—The paralytic weakness of the hinder extremities, which often appears to usher in the disease, and which is regarded by many authors as indicating the existence of some affection of the cord or its membranes, is believed by Dr. Bollinger to depend upon the intense edema and resulting degeneration of the inner and superior lumbar muscles, as described in case III. The only changes found in the cord have been slight hyperamia of the membranes and increase of the sub-arachnoidal fluid. If the paralysis was spinal in its origin—as held by most writers—unilateral palsy of one limb would not be so frequent; there would be disturbance of sensation—anæsthesia—and also involuntary discharge of the fæces and urine. The possibility of the lumbar region of the cord being involved in the collateral edema must also be taken into consideration, and in such cases anasthesia would be combined with the paresis.

The author believes the essence of the disease to be in a primary blood change, which produces, first, hæmoglobinuria; secondly, an acute nephritis with albuminuria; and, thirdly, by collateral edema of the lumbar muscles, and, perhaps, the lumbar portion of the cord—a paralytic condition of the hinder limbs. The very evident changes in the blood, internal organs and muscles, point, with the hæmoglobinuria, to some poison or poisonous material as the cause of the whole process against the view held by many authors that the disease is induced by “catching cold” are urged, the sudden, sometimes apoplectic form, onset of its violent course, the wide-spread alterations in the organs of the body, and, further, its enzootic appearance and geographical extension. It is most prevalent in South and Southwest Germany, rare in North Germany and Austria. In Vienna, according to Röhl, it is an

exceedingly rare affection. In Denmark, it is known as spinal-typhus; in Holland, as lumbar-typhus.* It would appear probable that we have to do here with an infectious disease, in which the poison, as in other diseases of this kind, is reproduced and increased either inside the diseased bodies or outside of the same. None of the numerous observers make mention of any contagious nature in the affection, and Dr. Bollinger, in some experiments upon other animals, had negative results. In Denmark, however, spinal-typhus, which appears identical with this disease, is treated as if contagious.

By many observers the injurious material is thought to be taken in with the food or drink, especially certain sorts, as sour hay, or hay which has become musty or attacked with fungi. In certain regions (Baden, Holland) it has been sought to connect the disease with the feeding of beet-root and mangel-wurzel to the horses. The view, that the *origo mali* is to be sought in the food, receives support from an analagous condition met with in cattle. In them a form of bloody urine exists, which, in many cases, is a true hæmoglobinuria, induced by certain foods, and feeding in certain meadows. Gerlach states that it is a blood disease, in which the corpuscles are dissolved and the coloring matter escapes with the urine. The same is caused by eating decomposing straw and frozen beet leaves.

No explanation can at present be given of the fact that the disease attacks horses which have been standing idle for a few days in the stable.

It is advised as a prophylactic measure, in regions where this disease is common, to pay special attention to the quality of the food, as there is a possibility of the introduction of the materies morbi by this channel. As a therapeutic means bloodletting has been much employed, but it is doubtful if, in blood poisoning of such an acute character, it can have much influence. Adam, in South Bavaria, in a number of cases, found it injurious, and Kolb and others believe that it hastens death. This is a point upon which careful observations are much needed. Where acute uræmia is threatened, owing to complete obstruction of the tubuli uriniferi and consequent suppression of urine, copious diuresis should be established. Finally, the author proposes the name "toxic hæmoglobinuria" as a substitute for the other names of the disease, believing that it expresses better than any other the nature of the affection.

[*Condensed from Deutsche Zeitschrift f. Thiermedizin, Bd. 3, Hfb. 3.*]

* I am informed by Principal McEachran that it is quite a common affection in Canada, being noticed more particularly in the winter months.—W. O.

REPORTS OF HOSPITALS.



NOTES ON INTERESTING CASES.

BY W. J. COATES, D. V. S., HOUSE SURGEON OF AMERICAN VETERINARY HOSPITAL.

Idiopathic Tetanus—Treated by Prussic Acid and Alcohol—Recovery.

Case I.—A bay mare, nine years old, was taken out early to do her usual work, when she was noticed being stiff in walking. When admitted, her symptoms were those well marked of tetanus—spasms of the muscles of the body, elevation of the tail, trismus, salivation, nostrils dilated, on the slightest excitement protusion of the membrana nictitans, and a straddling gait when made to walk. Carefully examined for any traumatic lesion, none could be found. The treatment consisted in keeping her bowels open, diluted alcohol in from two to four oz., three times a day, and hydrocyanic acid three ter die in one drachm dose increased slowly to two drachms, perfect quietness. Towards the third week she began to improve rapidly, and was discharged on the fifth week. During the whole disease, the temperature did not rise above $100\frac{1}{2}$ degrees Fahr.

Case II.—Another bay mare which, having been sold, was in the dealer's stable waiting for her owner to take her away. One morning she was found stiff when backing out of her stall. She was left without treatment for four days, and then sent to the hospital of the College. She presented all the symptoms of idiopathic tetanus; not the slightest scratch could be found on her body. The spasms were with her more violent than in case No. 1; in fact, she was perfectly blind by the constant presence of the membrana nictitans over her eyes; her jaws were closed tight, and her difficulties to take food, liquid or solid, were very great. Her treatment consisted in hydrocyanic acid, from half a drachm increased to three drachms three times a day; diluted alcohol, from eight to twelve ounces a day, and rest. At the beginning of her trouble, she also received chloral hydrate, four drachms twice a day, but this was not continued. About the beginning of the fourth week she showed improvement, and was discharged at the end of six weeks. Perfect quietness was carried with her as much as possible. Her highest temperature was $100\frac{1}{2}$ Fahr.

Pelvic Abscesses—Death.

A bay gelding, 6 years old, bought to auction, was some two months later found lame on the near hind leg. Having on the hock of that side a large bony deposit (spavin), he was treated for hock lameness with actual cautery and blister. About three weeks later, when ready to be turned out, his tail was found to be much swollen and painful, the sheath considerably swollen also. The enlargement of the tail soon became soft, suppuration detected, and allowed to escape by two free incisions; about one pint of pus escaped. Two days later another abscess formed on the right side of the anus, then another on the left, running into the pelvic cavity. Both were open, much pus escaped, and soon were healed. He was considered convalescent, when one morning he was noticed to stand with his hind legs stretched out as if in the act of micturiting, looking towards his flanks; began to lose his appetite; pulse became soft, 48; his temperature raised to $101\frac{2}{3}$ Fahr.; on rectal examination a large abscess was found on the inferior face of the sacrum, which was emptied at once, with the aspirator, of about five ounces of pus. The operation being somewhat difficult, as it was found necessary to introduce the whole arm in the rectum before the puncture could be properly made. On the next morning his pulse had raised to 50; his respiration, 14; and temperature to 102. He stands very quiet. Rectal examination shows the abscess quite full yet, but having a tendency to run backwards, and become more superficial. In the night he fell down, and was unable to get up. His pulse was 70, hard and weary; his breathing much accelerated; his temperature, $104\frac{4}{5}$; at 3 o'clock, A.M., he died. During his sickness, general treatment consisted of salicylic acid, camphor and gentian; local treatment to the abscesses.

On *post-mortem*, the abdominal muscles were pale, and showed two abscesses in way of formation near the sternum. The intestines and mesentery were much congested. On the roof of the pelvic cavity a large abscess, holding FORTY ounces of pus, was found, and communicating with smaller ones in the pelvic cavity and in the psoas muscles. The inferior face of the sacrum is laid bare by destruction of the periosteum and is carious. The large nervous trunks of the lumbar plexus are highly injected, and their substance look softer. All the other organs were healthy.

Epithelioma of the Penis—Amputation—Recovery.

A black gelding, twelve years old, was brought to the hospital, June 18, 1877, suffering with difficulty of micturition. On examination

a large epithelial growth of the head of the penis was found, with four or five smaller ones about five inches above the first one. This gave rise to a very offensive and abundant discharge which, with the constitutional disturbance, were rapidly undermining the poor horse. Amputation being decided upon, he was thrown down and etherized, the penis drawn well out, and a catheter introduced into the urethra, the skin drawn down over where the incision was to be made, so it would not cicatrize over the urethra, and close it up. The incision was made, cutting off about six inches of the penis. No artery requiring ligature, the edges of the sheath being brought together on the corpus cavernosum of the penis, and down below with the mucous membrane of the urethra. A catheter was then held in position by strings tightened over the back, and was allowed to remain in place for five or six days, when finding the animal passing a full and free stream of urine, he was discharged convalescent. Much swelling of the sheath took place which subsided by cold water showering.

CORRESPONDENCE.

HÆMOGLOBINURIA.

MR. EDITOR:

Oh ! what a name. Shades of departed lexicographers, what would the living Webster or Dunglison have said to such a name for such a disease.

Mr. Editor, are Veterinarians justified in searching over the ash heaps of the dead languages, to find names for symptoms or conditions of the animal that are the direct result of mismanagement? I think not. We have enough of disease, specific or otherwise, to grapple with, without dignifying the results of mismanagement in the stable with such a high-sounding name as "hæmoglobinuria." Since I have been in business in the city of Rochester, a period of thirty-two years, I have had to treat quite a number of cases of this "hæmoglobinuria," as our author names it; I never thought to give this diseased condition such a fearful name. Why, Mr. Editor, let us rather try to simplify the names required in our *noble art*, and use good Anglo-Saxon words that all may understand, in speaking and writing of our cases. Rather than to imitate the quack and empiric who try to astonish the public with their immense acquirements by using high sounding words and phrases.

This condition, as described by our author, is never found in the regularly worked and properly fed horse. But always is found, when found at all, after a period of several days' confinement to the barn; and then only when the animal is fed the full quantity or more of food that he should have when at work, and possibly food of the richest character in all the elements that go to build up the horse. The consequence is the blood becomes surcharged with carbon, fibrin, and other elements eliminated from the redundancy of rich food which renders it unfit for circulation. The nervous system suffers in proportion to this blood derangement, and under these circumstances, the animal is put to work. His spirits rise in anticipation of escaping confinement; the circulation of the blood becomes more active; the actions of the various organs of the body, particularly the *kidneys*, increase. He is harnessed and starts, but does not get ten rods from the barn, perhaps, before he comes to a stop, or gives such evidence of being unwell that the veriest dolt could see it. The driver perhaps thinks he has got the "belly-ache." He reasons thus, the horse has been idle some days and has filled himself too full, a sharp drive will do him good. The whip is applied; he is forced to go a longer or shorter distance. And likely this occurs miles away from an intelligent Veterinarian. Thus several hours elapse before assistance worth having arrives. The period is past when remedial measures can be of any use, and death closes the scene. I think that "*engorgement*" of the *kidneys* would be a better name for the diseased condition described by our author than hæmoglobinuria.

Respectfully yours,

WM. CUTTING.

ROCHESTER, N. Y.

A MOLAR EXTRACTED FROM THE TEMPORAL BONE.

Editor of A. V. REVIEW :

DEAR SIR :—The following case, being of somewhat rare occurrence, it may possibly be worth recording in the REVIEW.

About a month ago, I was consulted by Mr. A. Van Inwagen, of this city, respecting a four-year old colt (which had recently come into his possession), and which had a fistula at the base of the right ear, which had existed for over three years, and had been under treatment by an empiric for the last six months without effect.

On passing a probe up the sinus, which was straight, I detected that at the bottom was an apparently bony substance, which I at first

thought was probably an exfoliating piece of the temporal bone ; but, on second thought, it occurred to me that, possibly, it might prove to be one of those interesting dental tumors which I had seen recorded, but had never met with. An operation was decided on. A crucial incision was made over the tumor, and at the depth of about an inch the black crown was exposed pointing upwards; and after exerting pressure on the sides of the tumor in different directions with a chisel it was extracted with the forceps. A little tr. of iodine was occasionally injected into the cyst in which it was lodged, and in about two weeks the part was quite healed. The tumor proved to be composed of tooth substance, and in shape very much like a molar, was about twothirds the size of an ordinary molar tooth with imperfectly developed fangs, and was firmly attached to the temporal bone and surrounding structures.

I am, etc.,

NICHOLAS VASEY, M. R. C. V. S.

ROCKFORD, ILL.,

June 18, 1877.

VESICAL CALCULI—CYSTITIS—DEATH.

· SPRINGFIELD, July 17th, 1877.

MY DEAR DOCTOR :

I send you by express to-day the penis and bladder of a dog which recently died under my care ; he was owned by a Mr. J. Hunter, of your city, and it is possible that he may call upon you to see it. I saw him first at about 10 o'clock on the night of the 12th inst.; penis was swollen as you see it, and of a deep, mulberry color, dribbling of bloody urine ; examination showed a calculus lodged just at the back of the meatus in the urethra (you will see the spot) : this I crushed and removed next morning, the urine continuing in drops and bloody ; I passed catheter (passage was free) into the bladder, and no calculi could be sounded ; three or four ounces of effusive bloody urine were evacuated through the catheter, the bladder washed out with tepid water, and a solution of carbolic acid, 1 part to 200 parts of water, all being thoroughly evacuated by manipulation ; symptoms still continued, with increased fever. At about 4 P. M., temperature, $103\frac{1}{2}$ F. : pulse, 184 ; breathing, quick. About 5 o'clock, bladder again washed out, sounded, etc., with apparent relief. He died at about ten in the evening. On the 14th, *post-mortem*, Sunday morning ; results as you will see. He died of pyemia, the prostate being full of pus, as well as the whole parts being more or

less in a gangrenous condition. Query—Did the few small calculi cause all the trouble, or were the calculi the result of a long standing disease of the bladder? I am inclined to take the latter view, from the thickened walls of the viscus, etc.; also, that retention was caused by paralysis, and that the calculus found in the meatus gravitated there by distention. Please give me your views of the case, either in the REVIEW or personally.

Yours very truly,

C. P. LYMAN, V. S. E..

REMARKS.—From the careful examination of the specimen, we are inclined to believe that the original trouble was the formation and presence of the calculi, which gave rise to inflammation of the viscus (cystitis), a common affection in dogs; and that the retention of urine was due to the presence of the calculus in the meatus, thus interfering with its exit.

HYPOSPADIAS.

Editor of VETERINARY REVIEW:

It was my privilege to-day to make a partial *post-mortem* examination of an animal of the equine species, to which the term *hermaphrodite* has been applied; and since it does not fall to every Veterinarian's lot to make such an examination, I make you a report of the case. On the morning of the 17th I was called to see the animal, and found it down, and unable to regain its standing position; had been so for seven hours. For a long time past the near hind limb had been favored at time of starting from stable, and there was always difficulty in getting up from the near side. On Saturday morning, the 14th, assistance was necessary to enable the animal to get up, it having been lying upon the near side. Upon making a rectal examination, found the posterior aorta obliterated at its termination, and an aneurismal sack anterior to the obstruction. The posterior extremities were cold, yet retained perfect sensation, while all the assistance rendered failed to enable the patient to get up. Believing treatment useless, little was done, and the animal died this morning at seven. In making the rectal examination, two testicles were found at the upper part of the inguinal canal, so that he, at least, was a *male*. • In making the *post-mortem* examination, the testicles were found to be but very imperfectly developed, about the size of an ovary, and resembling this organ in structure more nearly than that

of a testicle. About three inches below the anus a slit commenced, which extended down to the anterior border of the pelvis, was an inch and a half deep, and lined with mucous membrane. The glans penis was well developed except that it was imperforate. Instead of being ensheathed in the prepuce, which was entirely closed, it was situated at the anterior or inferior commissure of the mucous lined slit, which was apparently a vulva. The urethra passed over the ischial arch, and emptied at the superior commissure of the false vulva, and the only thing remarkable about the case was the failure upon the part of nature to close the urethra all the way to the glans penis, while the prepuce was imperforate, and the testicles but slightly developed.

A. A. HOLCOMBE, D.V.S.

REMARKS.—The vice of conformation above described is undoubtedly a case of hypospadias, consisting in the malformation of the urethra which remained open at the inferior border of the penis, instead of extending to the head of the organ. When the opening is situated near the root of the penis, the scrotum is sometimes divided on the median line, and presents on the sides folds which resemble a vulva, and thus has the individual been looked upon as a hermaphrodite. Hypospadias is the result of an arrest in the development of the penis during the first months of gestation.

VETERINARY EDUCATION.

Editor VETERINARY REVIEW:

I met Mr. Stalker, of Iowa, in New York early in 1876. I remember him as a very pleasant gentleman and scholar. I respect him for his ability, and believe him a worthy member of the profession to which he has been lately admitted. But did he earn, as others must, except at Toronto, the degree which he now wears? Dr. McEachran was right in his criticisms upon the subject, and will receive the support of all who believe in raising the standard of our profession to where it belongs. The curriculum of the American Veterinary College says a "certificate of three years' study of medicine," and "attendance upon *two full courses* of medical lectures" are necessary before the students can apply for the diploma of the school. Mr. S. attended but a part of a course of lectures at this college, as he himself indirectly acknowledges in his letter in the July number of the REVIEW.

Before he could have obtained the diploma of this school, it would have been necessary for him to attend *two more full courses*. At Toronto, we are told, "two courses, at least," are necessary to obtain the diploma. If Mr. S. had not taken a course of lectures anywhere else, how comes it that one course suffices for him at Toronto? Is there a royal road to graduation there in which either brains or money can pass? Can my friend gain admission to the profession at Toronto, because he has more ability than I, in less than the prescribed time? Are the "two courses, at least," intended only for us poor mortals who have less brains than Friend S.? Something is wrong somewhere? Where is it? Will Dr. Smith tell us?

L. L.

PURPURA HÆMORRAGICA, NECESSITATING TRACHEOTOMY ON THE FIFTH DAY.—TREATED BY STRYCHNIA.—RECOVERY.

On the evening of April 21st, 1877, I was called to see a black gelding, about $15\frac{3}{4}$ hands and mouthed 8 years, of a nervo-lymphatic temperament, who had refused feeding that evening, and developed a slight swelling on the inside of right thigh, and supposed to be a strain. Inspection by candle-light revealed an abrupt termination superiorly of the swelling, but no tenderness of the lymphatics higher up the leg. Examination of the visible mucous membranes revealed ecchymosis, but to a very slight extent, in fact only the size of pinheads, and very few *punctas*; sufficient however to indicate purpura hæmorrhagica. Pulsation, 60; respiration, 20 per minute; temperature, per ano, 105 degrees. History prior to the present attack, some three weeks animal had suffered from influenza, and was depleted, *ad libitum*, during a period of two weeks by a daily administration of four ounces of sulphate sodæ. This method of treatment seemed in their estimation a *panacea* for all the ills horseflesh is subject to.

Having a desire to try the action of strychnia, it having been advocated by a brother member of the profession some two years ago, I placed the patient under half grain doses of strychnia every two hours during the night, and requested the leg fomented as often as possible.

On the morning of 22d, animal quiet, both hind legs swollen from the hocks up; respiration and pulsation the same as previous day; temperature, $104\frac{2}{5}$ degrees. Eats a little. Prescribed $\frac{3}{4}$ grain every three hours during day and night; swellings to be fomented frequently, and

stimulating embrocation applied, composed of one part canthar. tinct. sapons. tinct., parts three ; and requested careful handling on the part of attendants, so as to try and prevent unpleasant swellings around head.

On morning of 23d, respiration, embarrassed ; pulse, quick and strong ; temperature, 103 degrees ; urine contains albumen. Prescribed one grain every four hours ; same local treatment.

On morning of 24th, respiration, labored, 24 per minute. Animal a little excited ; the swelling extending along the inferior line of abdomen ; sheath swelling, and anterior extremities becoming large from the carpus up ; none below the carpal and tarsal regions. Animal refuses dry food ; eats grass and drinks oatmeal gruel. Stands in one position, but looks bright and cheerful. Temperature, $102\frac{4}{5}$ degrees. One and a half grains every four hours ; no change in local treatment.

Evening of 24th—Slight swelling around nostril and sheath greatly swollen ; scarified both extensively, making some deep incisions. Respiration labored. Animal ate nothing all day but drank some gruel ; requested four ounces of brandy in gruel per rectum every four hours, and discontinued balls of strychnia from the trouble in administering due to swollen condition of lips, and to increase the hot fomentation to parts swollen. At this period, there seemed a bloody sweating over the surface of the swollen parts. Morning of the 25th—Head frightfully swollen and shapeless, eyelids closed, nostrils almost closed, respiration performed only with the greatest difficulty, animal greatly excited, membranes purple, pulse hardly perceptible, asphyxia threatened, temperature $103\frac{1}{2}$ degrees. With the consent of the owner I performed tracheotomy in the usual manner, with this exception, that, instead of dissecting out a circular piece of the trachea, I cut downwards through several rings, dilated the cut edges, and almost with the first respiration of air the animal became easy, membranes cleared, showing perfect oxygenization of the blood. When a tube is to remain only a short time in trachea I prefer making incision through several rings, as cicatrization takes place sooner, and there will be less deformity. Two grains of strychnia every twelve hours was requested to be given. Animal allowed milk and eggs in gruel as often as required, and enemas of brandy every three hours in gruel to support patient ; swollen parts to receive constant bathing and rubbing, and bedding to be wet frequently with water to allay dust, and a little chloride lime sprinkled around the stall, and the tube to be cleansed with a five per cent. sol. carbolic acid in oil every two or three hours.

P. M.—Animal looks bright ; respiration easy ; has drank several pailsfull of gruel through the day, and tried to eat a little grass, but jaws are too stiff ; temperature, $101\frac{1}{2}$. Morning of 26th.—Swelling subsides around the face, and has eaten a little crushed oats and grass ; skin at the back of carpal and in front of tarsal region cracking, and a sanguinous fluid escaping ; also large discharge from sheath ; requested parts to be bathed with a sol. carbolic and oil after hot water bathing. Tube to be removed and cleansed twice a day, and annointed with sol. carbolic acid and water before insertion. Two grains strychnia every four hours, and same local measures. A slight swelling around tube, but hot water bathing holding it in check. P. M. 27th.—General appearance good ; swelling around face almost gone ; around legs and sheath becoming smaller ; breathes pretty well through nostrils ; slight hemorrhage from nostrils and urine bloody, and stools, first hard and dark and then soft ; has had slight colicky pains. Gave tinct. opii, oz. *i*, acidi. sulph. dil., drs. *ii*. in oil, and to be repeated, if necessary, every two hours until easy. A fatal diarrhœa, when the swellings disappear rapidly, has proved destructive in many a patient with me, and such is the history of Purpura Hæmorrhagica gleaned from medical works

Requested animal to receive during day three balls, containing in each strychnia *gii*., ferri. sulph. dr. *i*., gent. 9 *s*. During the day has eaten several small feeds of oats—in all four quarts—some grass and hay ; also eaten and lay down for the first time, and arose without help. Temperature, $101\frac{1}{2}$. From this day, until the 3d of May, nothing of note occurred. Swelling rapidly disappeared. Some few bed sores formed on the exposed angles, which were treated by having hot and then cold water dashed on them, as recommended by Brown-Sequard, but proved easy to eradicate. On the morning of the third I removed the tube, and brought the edges, after scraping them, together by the deep, as well as superficial sutures. Feeling satisfied with the action of strychnia I had patient placed under sol. arsenicum, Fowler's, grains 5 in day, and given sunshine baths. Removed sutures in seven or eight days, and the granulations touched with nitrate silver a few times. On May 16th, discharged, looking very fine, particularly about the face and legs.

I remain, respectfully yours,

R. W. FINLAY, V. S.,

VARIETIES AND NEWS.

HORSES IN EUROPE AND AMERICA.

The number of horses in the various countries of the European continent and in the United States has been estimated as follows: In Russia, 16,160,000; North America, 9,504,200; Germany, 3,352,231; Great Britain, 2,790,851; France, 2,742,738; Austro-Hungary, 3,569,434; Italy, 657,544; Norway and Sweden, 655,456; Spain, 382,000; Denmark, 216,570; Belgium, 272,163; Holland, 260,056; Switzerland, 100,934; Greece, 98,938; and Portugal, 79,616; making a total in the countries mentioned of 40,854,840.—*Veterinary Journal*.

America, according to this statement, holds the second rank amongst civilized nations for the number of her horses. If we look at the number of those who are to be trusted with their care—to the number of Veterinarians—in what rank would she be placed?

SALICYLIC ACID AND SWINE PLAGUE.

A Saxon Veterinarian successfully employs this acid internally, and also in the form of enemas (1 to 250 of water) in the treatment of this malady. It is also recommended in the treatment of auricular catarrh in the dog with sulphuric acid—five centigrammes of the acid to five grammes of water are sufficient for one ear.—*Veterinary Journal*.

FREE SCHOLARSHIP.

The offer of the free scholarship to the State Agricultural Societies of the United States made by the Board of Trustees and Faculty of the American Veterinary College seems to have met with cordial notice from the different societies, and several students will probably take advantage of the free tuition.

CASTRATION OF CRIPTORCHIDS.

During 1876, Mr. Degive, a Veterinarian of Belgium, has castrated 7 criptorchid horses, three affected with inguinal, and four with abdominal criptorchidy. He only lost one of these last.

THE OLD QUEEN of the trotting turf, Flora Temple, now thirty-two years old, is reported to be failing rapidly.

CANINE STATISTICS IN NEW YORK.

Nearly 4,500 dogs have been captured since the re-enforcement of the laws on dogs, and about 11,631 have been licensed at the City Hall; making a total of over 16,131 dogs in the city of New York alone.

SPECIMENS.

SENT FOR THE MUSEUM OF THE AMERICAN VETERINARY COLLEGE.

- 75. Fractured Os Suffraginis.....A. A. Holcombe, D. V. S.
- 76. Fibrous Tumor from the Superior Cervical
Region of a Cow..... F. B. Fermler, D. V. S.
- 77. Bar Shoe for Treatment of Quarter Cracks and
Corns.....W. Cutting, V. S.
- 78. Hair Calculus taken from a six weeks old Calf,
weighing W. Rose, V. S.
- 79. Champignon of Left Spermatic Cord..... W. J. Coates, D. V. S.
- 80. Urinary Apparatus of a Dog ; showing Chronic
Cystitis and Diseased Prostate.....C. P. Lyman, D.S.E.
- 81. Urinary Vesical Calculi of the Same..... “

EXCHANGES.

Scientific Farmer, Boston ; American Agriculturist, N. Y. ; Country Gentleman, N. Y. ; Live Stock Journal, Chicago ; Medical Record, N. Y. ; New Remedies, N. Y. ; Archiv fur wissenschaftliche und practische thierkeilkunde, Berlin ; Annales de Medicine Vétérinaire, Bruxelles ; Hospital Gazette, N. Y.

COMMUNICATIONS RECEIVED.

A. A. Holcombe, N. Y. ; W. Cutting, Rochester ; L. L., N. Y. ; Prof. J. Law, Ithaca ; F. S. Billings, Berlin ; C. P. Lyman, Springfield ; Dr. W. Osler, Montreal, Canada ; R. W. Finlay, N. Y.

AMERICAN VETERINARY REVIEW,

SEPTEMBER, 1877.

ORIGINAL ARTICLES.

A CONTRIBUTION REGARDING THE SEPTIC DECOMPOSITION OF THE BLOOD.

By PROF. E. SEMMER, OF THE ROYAL VETERINARY INSTITUTE OF
DORPAT, RUSSIA.

[Translated from the German (Virchow's "Archiv für pathologische Anatomie," 67 vol., 3d part, page 371), by F. S. BILLINGS, of Boston, Mass., for the AMERICAN VETERINARY REVIEW.]

Septic decomposed blood is characterized in general by its dark, brownish black, or changed color, its abnormal thick consistency, and its non-ability to coagulate; through the numerous ecchymosis found in different parts of the organism, the serous cavities of the body are found more or less filled with a yellowish, or reddish transudation, the intestinal mucosa is more or less affected, and the cadaver rapidly becomes decomposed. In the blood are to be found suspended numerous bacteria, representing the micrococcus, streptococcus, microbacteria, streptobacteria of Billroth. The red blood cells are found in a state of dissolution, sometimes almost entirely absent immediately after death, the serum of the blood is brown colored. The putrid decomposition of the blood is to be distinguished from that following fully developed septicaemia by the following characteristics. By the putrid blood-intoxication we find micrococci and streptococci ("Kugel und Kittenbakterien"), Fig. 1 and 2, by completely developed septicaemia, on the contrary microbacteria and streptobacteria (Stäbchen und Fadenbakterien,") Fig. 3 and 4.

Anthrax (charbon) bears the strongest resemblance to septic blood decomposition. By anthrax we find dark blackish brown, tar-like blood,

ecchymosis, gelatinous bloody infiltration, on different parts of the organism, and intestinal affections. The blood of anthrax contains, however, the bacteria characteristics of that disease, *bacillus anthracis* (Koch), which fail by septic and putrid diseases of the blood. Brauell and Davaine have also noticed this point of difference.

Some authors have unjustifiably identified anthrax and septicaemia (Ravitsch). A further difference between anthrax and septicaemia is, that we can always generate the latter artificially, which has never been successful by anthrax. We can produce a putrid decomposition of the blood from injection of foul material, or from foulness bacteria, in the circulation, or introducing such elements subcutaneously, which, if the animals do not die too quickly, will produce developed septicaemia. Putrid blood, and especially septic blood, as also that from anthrax individuals, is exceedingly contagious. The contagion of septicaemia can be generated from fouling elements, in living blood. The causes of anthrax are, without doubt, to be sought in the decomposing elements of organic substances, or living organisms of the lowest order, the early stages of whose development take place outside of all animal organisms.

Putrid, and especially septic bloods, are especially contagious, and in such are to be found *intra vitam* micrococci, streptococcus, etc.

The intensity of septic poison increases from generation to generation, by means of repeated inoculation, as was shown by a series of experiments at Dorpat in 1869, and by Davaine in 1872; also receiving confirmation from Magendie, Cone, Sanderson, Klein and others. Like increase of the intensity of the contagion from generation to generation has not been confirmed by anthrax.

As by anthrax, so by typhus of the horse (*febris putrida*, *purpura hemorrhagica*, foul fever), the blood is found to be miscolored, blackish brown, and microbacteria have been found in the same (Fig. 11).

[NOTE.—Röll, of Vienna, in his "Lehrbuch der Pathologie und Therapie der Hausthiere," classes this disease with anthrax, and speaks of the presence of bacteria in confirmation of this opinion. English authors do not seem to have examined the blood carefully of such patients, and it would seem well worthy of attention to prove if it be so or not. I have personally examined the blood of some eight cases this spring, very carefully, from day to day, and found none, nor have other fellow students been more successful, and it seems to be very questionable if this little understood disease should at present be looked upon as one of anthracic form. If the bacteria are present at all, it is only during the last stages of life, and all observers should be very careful about reporting bacteria found post-mortem, especially if organic foulness has set in.—*Trans.*]

Rabies by the herbivora bears a strong resemblance to septic blood

decomposition. By the dog the resemblance is very slight. Rabies in dogs is characterized by the presence of gastro-enterical catarrh, foreign substances in stomach, capillary stasis, and encephalic edema; the saliva and blood contain a very fine variety of micrococcus and chain-bacteria (Fig. 6). The encephalic edema is more marked by dog distemper; one finds constantly a partial broncho-pneumonia, with serous, or fibrinous, or suppurative infiltration of the affected parts of the lungs. By the distemper are to be found in the blood, the liver and kidneys, fine granular micrococci, out of which, under circumstances, develop very delicate microbacteria, which are very much smaller than the bacillus anthracis of anthrax (Fig. 7). By eight cattle dissected by me, which had died from rabies, the blood was found to be miscolored, brown red, the intestinal mucosa markedly reddish and swollen, the encephalon correspondingly edematous, in the ventricles much reddish transudate, ecchymoses on various portions of the organism, in the blood, besides micrococci and microbacteria, a spermatazoa like variety (Fig. 8).—(Helobacteria, Billrath.)

The same result was obtained from a wolf which died of rabies, with the exception of the above-mentioned "helobacteria." By 50 rabid dogs dissected by me, I found only 2 which presented phenomena resembling those common to septicaemia.

Regarding putrid and septic diseases of the blood, the greater contingent for the same is to be found in gangrene, and ulceration in consequence of outward injuries, fractures of bones, injuries to joints, and the reception of the ichor from the same in the circulation; next to these the infection from septic and putrid substances of every variety. The septic decomposition of the blood by animals has still other sources.

From the investigations of Bollinger and Roloff it is proven that the so-called calf and lamb fever of new born animals (why not of foals also?) is a disease of the blood, owing to septic decomposition, caused from a putrid inflammation of the umbilicus. This inflammation has its primary cause in pollution of the umbilicus of the new born animal from stable filth, and insufficient cleansing of the body. According to my 12 years' experience, and dissection of over 1,500 animal cadavers, which had died from all manner of causes, I look upon the following as among the causes of septic decomposition of the blood:

Puerperal fever is often of a septic nature by animals. We find in the blood of animals which have died from this disease, immediately after death (should be also examined immediately before, or during the

agony), putrid micrococcen, chain-bacterias, or septic, micro and streptobacteria. In such cases, we find ichorous masses in uterus, and at the same time injuries of the uterine mucosa, or ichorous diphtheritic inflammation of the uterus. The reception of the putrid elements from the uterus into the circulation is, in this case, the cause of the septic puerperal fever.

A further source for septic decomposition of the blood is to be sought in the so-called flatulent colic, especially by horses. Here accumulates the gases (CO_2 , H_2S and others) in the stomach and intestines in great quantities, so that the abdomen is distended, the diaphragm pressed forward into the thorax, and the respiration disturbed. The noxious gases become absorbed by the blood-vessels, and the reception of oxygen by the lungs hindered. The animals die from asphyxia, with blood poisoning also at some time from the noxious gases. By the obduction, the stomach and intestines as found distended by gases, the intestinum crassum inflamed in most cases; but we do not always find volvulus with gangrenous necrosis of the volvulated intestines, but often rupture of the intestines or of the stomach, and emptying of their contents in the abdominal cavity with peritonitis. The blood is, in all cases, of an abnormal color, dark blackish brown, and contains septicbacteria; the red blood cells are in process of disintegration. That the above is the nature of the blood, very often in cases where neither gangrene or rupture has taken place, is well known; so we must look for other sources for the septic decomposition than gangrenous or ichorous centres.

The same comes to pass even more markedly by animals which have been overheated or overexerted, which die suddenly therefrom, or gradually die from asphyxia. By such animals the blood is found to be tar-like, and also contains microbacteria. Here the oxygenation by means of the lungs is insufficient for the wants of the organism, or to equalize the decomposed materials caused by the severe muscular action. The latter accumulate in the blood, and septic decomposition takes place from want of active oxydation of the same.

The same processes take place in many cases from suffocation in consequence of lung and heart diseases, or chronic poisoning from narcotic substances.

The want of oxygen and especially ozon gives a favorable opportunity for the development of septicbacteria. The latter being found by obductions immediately following death, we have not to do in these cases with first mortal blood changes; the named characteristic phenomena fail by animals which have met their death from other diseases.

From this we may conclude that the putrid and septic bacteria find in such blood conditions very favorable to their development. The intestines and liver must be looked upon as constant sources for bacterian emigration, as we must meet them there by healthy individuals. Experience has taught that small quantities of foul material containing bacteria can be brought into the circulation of healthy animals without evil consequences. The same are disturbed in the circulating blood. Greater quantities of noxious elements taken from the intestines into the blood can bring on death through septicaemia. If, as shown by Bollinger, myself and others, the bacteria can cause the death of the animal by asphyxia, through the withdrawal of the oxygen, as takes place by anthrax, yet it does not appear to be the case by septic and putrid bacteria. The latter develop from the want of oxygen in the blood, and appear to work especially upon the red blood cells, and to cause an immense disintegration of the same.

The bacteria of other contagious diseases die from want of oxygen in the blood, they soon die when foulness begins in the cadaver, and are replaced by foulness bacteria (anthrax distemper, rabies, rinderpest, etc.) Another source for putrid bacteria is to be found in blood transfusion. Aside from the fact the blood from animals of other species becomes decomposed in the circulation, and is excreted by means of the kidneys, comes here in consideration the fibrin ferment discovered by A. Schmidt, by means of the latter is caused coagulation, stosis and thrombosis. (Köhler, über Thrombose, und Transfusion, Eiler, und Septische Infection, und deren Beziehungen zum Fibrin ferment. Dorpat, 1877.) True putrid decomposition of the blood can take place by means of transfusion.

In spring of 1875 the blood and milk from an old cow suffering from tuberculosis was injected partly in the veins and partly subcutaneous of thirty young pigs and lambs by way of experiment. The quantity of blood and milk amounted to one fifteenth to one thirtieth of the total amount of the blood of the above animals. The above quantities of blood and milk was borne by the animals in question without apparent prejudice. The infusion took place in pure air from one to one and a half hours after the withdrawal of the blood with disinfected and perfectly clean instruments. The blood was previously defibrinated, but not warmed; the milk was also not warmed. Of the thirty animals, eight died partly from hydrops, partly from other accidental causes. Sixteen of them were killed six months after the infusion, and showed fully developed tuberculosis. Two young pigs were brought into a room filled

with air impregnated with foul elements, and the infusion took place one hour after the blood was taken from the cow. One of them died three days, the other five after the infusion took place. Both manifested septicaemia in high degree. The same blood which was injected into the other animals in the pure air, and caused no disadvantageous conditions, by these, where the operation took place in polluted air, caused septicaemia and a rapid death. Two rabbits were subcutaneously injected with blood from a horse which had been inoculated with glanders four days previously. The blood was previously to injection brought through a room the air of which was polluted with foul elements. Both died after eighteen and twenty-four hours, and presented the phenomena of fully developed septic and putrid blood decomposition. The blood of the rabbits examined immediately after death contained scarcely any red cells, only detritus masses of the same, and a great many micrococcal and streptococcal, which must also have been present *intra vitam*, so many being present when the obduction was made which immediately followed their death.

If the examination of the blood of animals suffering from putrid or septic decomposition of the same, does not always show bacteria *intra vitam*, the same does not prove that they are absolutely absent. The same may be disturbed by means of the active oxydation taking place in the circulating blood. It is easily supposable that the same may be filtered from the blood by means of the liver, kidneys and spleen, and yet they may increase, and periodically appear in the circulation in great numbers, until they finally gain the upper hand, and are able to so carry on the work of disintegrating the red cells. The circumstances that foulness bacteria very often develop in the cadaver very rapidly, and cause the disappearance of those peculiar to certain diseases has often led to many false conclusions. It is entirely wrong, as may be asserted, that there is no difference between the bacteria met with by different contagious diseases, and that the same are exclusively the consequence of the disease—only gradually varying according to the disease, and species of animals.

As examples of the specific forms of bacteria by single diseases, I quote cattle. By the same we can distinguish—putrid bacteria, Fig. 1 and 2; septic bacteria, Fig. 3 and 4; rabies bacteria, Fig. 4; anthrax bacteria, Fig. 5; rinderpest bacteria, Fig. 9. The bacteria by the rinderpest were constituted by me in 1871. (*Wiener Vierstelfahrschrift*, 1871, Bd. 36, S. 176), then from Klebs and Hallier, and again more exactly treated by me in 1875. (*Ueber die pathologische anatomie de Rinderpest Dorpat*, 1875.)

The bacteria of anthrax are exactly alike in all species of animals. The same is true of the so frequently present putrid and septic bacteria.

The number of bacteria present by acute contagious and infectious diseases is generally considerable. (The same is true of anthrax, rinderpest, variola, cholera, *F. recurrens*). By chronic contagious diseases, as tuberculis, glanders, syphilis; the number of bacteria present is less, and appear to attach themselves mostly to the white blood cells.

Although the bacteria of glanders, Fig. 10, bear some resemblance to those of syphilis, yet both diseases are essentially different. Inoculating experiments with syphilis on animals have produced only negative results. Glanders however is not only communicable to men, but also to carnivora, herbivora, and especially rabbits.

All contagiums are disturbed by foulness, and the bacteria peculiar to each contagious disease, vanish with the beginning of foulness, and are replaced by foulness bacteria, which may be looked upon as weeds, by which the delicate organism present in the cadaver, are soon overrun, and forced out of existence.

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Taf. K.

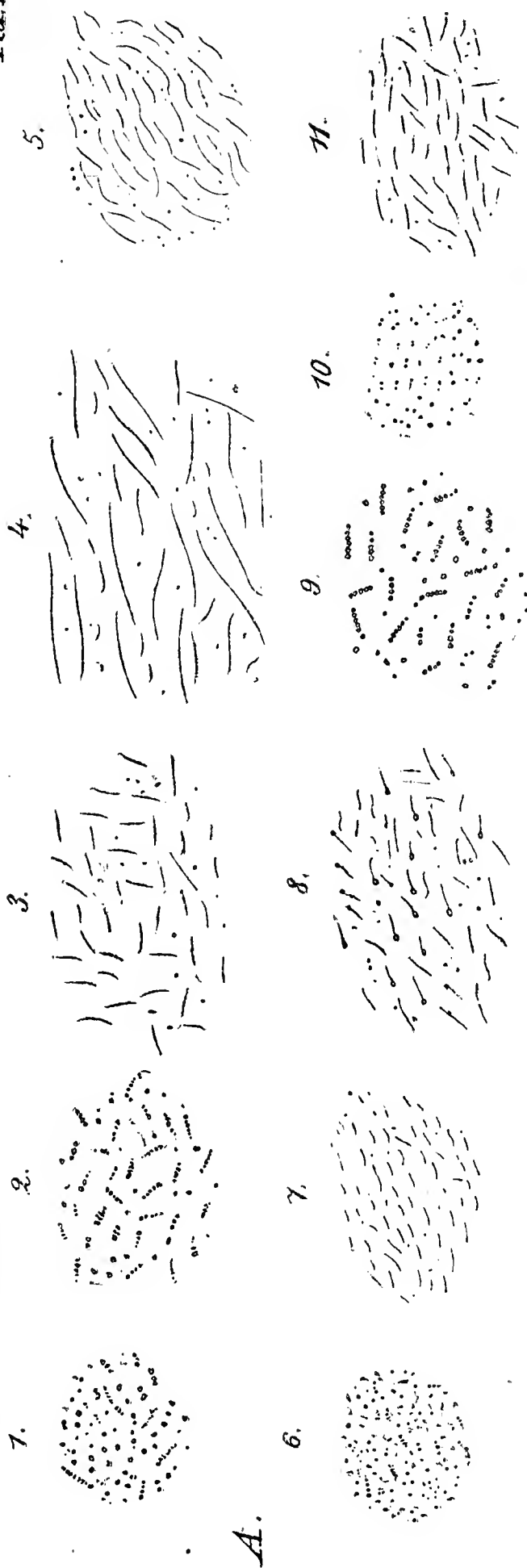


Fig. 1—Foulness bacteria. Fig. 2—Bacteria by Putrid Blood Decomposition. Fig. 3—Bacteria by Septic Decomposition. Fig. 4—Bacteria by Septicaemia. Fig. 5—Bacteria by Anthrax. Fig. 6—Bacteria by Rabies. Fig. 7—Bacteria by Dog Distemper. Fig. 8—Bacteria by Cattle Rabies. Fig. 9—Bacteria by Rinderpest. Fig. 10—Bacteria by Glanders. Fig. 11—Bacteria by Typhus.

PERIOSTITIS.

BY A. A. HOLCOMBE, D. V. S., N. Y.

[Continued from Page 149.]

In so far as we have observed, the Veterinary works in the English language are almost entirely destitute of any information concerning the disease of which we are attempting to treat, and the profession will appreciate the difficulties to be overcome, and the inevitable errors which will occur, in the exposition of periostitis as it occurs in the different parts of the entire osseous system, by one who has seen so limited an amount of practice. In treating of this disease as it occurs in different parts of the body, we have thought it best to consider the regions in the order of their most frequent seat of occurrence.

It is the long bones which, as a rule, are subject to the acute form of periostitis, hence their consideration will be left until the last.

The short, flat, and irregular bones being usually the subjects of the chronic form of this disease, will be divided into six different regions.—1st, the phalanges; 2d, the tarsus; 3d, the carpus; 4th, the inferior maxilla; 5th, the vertebral column, including bones of the head; and the 6th, comprising the scapula, sternum, ribs and pelvis.

PERIOSTITIS OF THE PHALANGES.

Inflammation of the periosteum covering the last phalange, or os pedis, is due, in the majority of cases, to traumatic influences, as punctured wounds; toe-crack, quarter-crack, concussion, &c., yet it is sometimes met with as an accompaniment of disease of the neighboring joints and contiguous tissues. While punctured wounds of the feet are seldom seen in the country, nothing is more common, especially in the spring of the year, than the picking up of nails in the streets of our cities, and although the wounds at the time may seem trivial, they are often followed by untoward consequences, as will be attested by every practitioner, and perhaps especially so by our friend Mr. McInnes, of Charleston, South Carolina, who reported in the *Veterinary Journal* for March, 1876, some twenty-five cases of tetanus as the result of punctured wounds.

Any instrument perforating the walls of the foot and wounding the bone must of necessity be followed by a more or less circumscribed

periostitis and superficial ostitis. It is not necessary in every instance that the periosteum be wounded to produce an inflammation of its substance, for from the intimate relation which it bears to the surrounding parts, it may become inflamed in consequence of the diseased condition of the contiguous soft tissues, as in acute laminitis, arthritis, or the pressure from keratoma.

But when the tissue has been wounded, the damage cannot be repaired except through the inflammatory process, and although this process is generally reparative in its tendencies, it may assume the destructive form, and the complications and terminations be anything but desirable.

The serious consequences resulting from punctured wounds of the feet depend upon the seat of the wound, and the amount of injury done the tissues.

If the instrument causing the wound be small, and the injury inflicted but slight, the process necessary to repair the damage is, of course, quite limited; but if the puncture is made by a large instrument, or the tissues are deeply perforated, then does the destruction of tissue become greater, and the consequent disease proportionate. Wounds upon the lower part of the wall, and in the anterior portion of the sole of the foot, are of less consequence than those in the neighborhood of the joints. The injury in the former class of cases is, as a rule, quite limited, although there may be fracture, with its attendant serious consequences, but mostly there is only a circumscribed inflammation of the tissues with or without suppuration, which, if properly and early treated, ends in a short time with complete recovery, and the animal can again be put to his accustomed work.

Shoeing-smiths, in their attempts at bleeding from the toe, and treating of nail-pricks, sometimes succeed in presenting the Veterinarian with an interesting case of suppurative periostitis, where, had the tissues been given relief in exudation by a free and judicious use of the knife, would have terminated at most in a moderate amount of villitis. To those wounds situated in the immediate locality of the frog, and especially those through the cleft, as well as the ones seen upon the superior anterior portion of the wall from the sharp calks of the shoes in winter time, must there always be more or less grave importance attached. A punctured wound of the sole near the last phalangeal articulation, even when slight, is prone to be followed by periostitis and synovitis, in which the attachment of the flexor pedis perforans takes part.

It is these wounds occurring near the heel, where the nail or other

instrument perforating the tendon fractures the navicular bone, and guarantees permanent lameness, if not a fatal synovitis.

The majority of wounds which we see upon the front of the hoof just below the coronet are not deep, neither are they accompanied with even a moderate amount of lameness; yet, there are occasionally instances in which the newly sharpened calk will penetrate so deeply as to wound the tendon of the extensor pedis at or near the point of its attachment upon the pyramidal process of the os pedis, and it is in these cases you will see acute and permanent lameness from inflammation of the wounded tendon which may be accompanied by synovitis, periostitis, ostitis, and rarely caries of the pyramidal process.

There are some horses with the habit of standing with the heel of one hind foot resting upon the upper portion of the hoof of the other foot, and during the winter months they may keep themselves continually lame from irritating a previously received wound of the above character, by their reprehensible practice of standing cross-legged.

SYMPTOMS AND COURSE.

All punctured wounds of the foot are not followed by periostitis, and usually it is only those in which the wound is extensive, or the periosteum directly injured, that inflammation of this tissue supervenes. If the animal is known to have picked up a nail, the foot is generally allowed to go unattended, or at most stuffed with oil-meal at night, until lameness sets in, when the smith pares the horn around the seat of the wound and the patient is returned to work. If the wound has been slight there may be no lameness following it whatever, but usually the horse is sent to you a week or ten days after the injury with acute lameness from suppuration unrelieved. The wound, which would have recovered in a few days' time from judicious treatment, becomes one of importance by reason of the neglect; the inflammation which was at first confined to the podophyllous, or to the velvety tissue, extends to the periosteum, and suppuration takes place between the outer and inner layers of this membrane, and unless relieved extends over the entire sole. There are other cases where no wound can be found, the puncturing instrument being so small as to leave no detectable evidence of its passage through the horn, and although the animal is lame, you may not be able to make a correct diagnosis until suppuration has taken place, and the presence of the pus is detected beneath the horn. If the substance of the bone has been wounded, you will have the most acute lameness from the moment of the injury, superficial ostitis setting in with acute suppurative periostitis.

The suppuration takes place beneath the true periosteum upon the surface of the bone, and separating the two, the periosteum is to an extent destroyed. The lameness at this time, even where the horn has been completely pared away, is so great as to prevent entirely the use of the foot, it being continually raised from the floor, and allowed to bear none of the weight of the body even during locomotion, the animal preferring to hobble along on three legs. In noting the constitutional symptoms you will find an elevated temperature, a quickened pulse and respiration, and sometimes a loss of appetite; the mucous membranes will be slightly injected, and the animal persist in standing. These cases usually lose flesh very rapidly, especially where synovitis is an accompaniment. After the pus is allowed to escape, where periostitis without synovitis is present, most of the cases will do well; the denuded bone becomes covered with the granulating soft tissues, which eventually replace the destroyed periosteum, and as the inflammation subsides, the tissues, which have been greatly swollen, become gradually reduced and finally covered with new horn. The lameness improves as the recovery progresses, and the constitutional symptoms disappear as the suppuration terminates. In those cases where synovitis is present the suffering is still more acute than in the cases previously mentioned, for, as a rule, all food is refused, and the patient rapidly runs down in flesh, and if suppuration sets in he may die of pyæmia. But even where the case does not terminate fatally, ankylosis of the joint is almost sure to follow, leaving the patient a permanent cripple. The presence of suppurative synovitis will be easily made out by the character of the discharge, there being mingled with the pus a large amount of synovia, streaked with more or less blood.

Where fracture of the os pedis exists as the result of a puncture, and you cannot detect it with your probe, you will suspect it from the long-continued and acute lameness, or from the callus formed in the reunion of the parts. There is yet another course the processes following an inconsiderate puncture may take, which, although not common, is very interesting, and that is, where the lameness is slight from the commencement, and continues for months without getting better or apparently worse. It is in these cases that a chronic periostitis exists, and a deposition of lime salts takes place around the attachment of the flexor tendon, the lameness being permanent from the interference with the action of the joint.

[TO BE CONTINUED.]

ANATOMY OF REGIONS.

Translated from Peuch and Toussaint's, Précis de Chirurgie Vétérinaire.

BY A. LIAUTARD, M. D. V. S.

[Continued from Page 159.]

SECTION 3.—REGION OF THE NASAL FOSSAE AND OLFACTORY APPARATUS.

As indicated by its name, the olfactory apparatus serves to the perception of odors; it is besides that the anterior part of the respiratory apparatus. In horse, whose velum palate is very long, it constitutes the only possible passage for the entrance of air into the lungs.

The nasal fossae represent two symmetrical canals, elongated according to the great axis of the head from the nostrils to the pharynx, and separated by a median bony, cartilaginous septum. Their bony walls are formed by the nasal, superior maxillary, ethmoid, turbinated, frontal, palate and pterygoid bones.

Each cavity has the form of an elongated tunnel with an *anterior* and a *posterior opening*, *two lateral walls*, a *roof* or *arch*, a *floor*, a *posterior chamber*, the *septum* which separates them, the *mucous membrane* which covers all these parts, and at last *blood vessels and nerves*.

The *anterior opening* is flattened sideways; it has for wall outwardly the inferior extremity of the maxillary turbinated bone, divided in two branches—the inferior covers the ascending apophysis of the small maxillary—the superior has a movable, cartilaginous skeleton, easily felt when the finger is introduced in the nostril; it is covered by the skin, and prolonged by a peculiar thick fold which separates it from the false nostril, and is continued with the superior extremity of the internal lip of the nostril.

The *posterior opening*, also called guttural, is about quadrilateral, slightly elongated in the direction of the axis of the head, with round angles; it is divided in two parts, corresponding to the two nasal fossae, by the border of the vomer which supports the median septum. The palate and pterygoid bones circumscribe it outwards. Formed by bony walls it is not susceptible of expansion. The inflammation or thickening of the mucous membrane can alone influence its diameter by narrowing it.

The *lateral walls* are one internal, formed by one of the sides of the median lamella, flat and smooth; the other external, very anfractuous, formed by the internal face of the great maxillary supporting the turbinated bones.

These *turbinated* are two in number, the supero-anterior or *ethmoidal*, and the infero-posterior or *maxillary*. Both are formed by a bony lamella, twisted upon itself in opposite direction, and in such a way that the longitudinal slit, which gives entrance in their interior, is situated in the middle meatus; they are wider at their superior extremity; and in all their extent slightly flatten from side to side. Both are divided in two parts by a transverse bony plate; the superior part communicates with the sinuses, the inferior subdivided into several lodges open into the nasal cavities. Both at last are prolonged inferiorly by a fibro cartilage and mucous folds uniting them to the wings of the nostrils.

The bony frame of the ethmoidal turbinated bone is longer than that of the maxillary; the contrary exists for the cartilaginous portion. This one has no connection of continuity with the ethmoid, while the former is, so to speak, the most anterior volute of that bone. The superior cavity of the ethmoidal communicates with the frontal sinus, that of the other with the inferior maxillary sinus. At last, the cartilaginous appendix of the maxillary turbinated bone is always divided in two portions, the anterior of which is directly in continuation with the internal wing of the nostrils; the cartilaginous portion of the ethmoidal turbinated, almost always single, disappears before reaching the nostrils.

The turbinated bones are separated from each other, from the roof and floor of the nasal cavities, by very narrow spaces called *meatus*. The *superior or anterior meatus* is the narrowest; its anterior wall is formed by the roof of the cavity. The *inferior or posterior meatus* extends from the maxillary turbinated to the nasal floor. The *middle meatus*, situated between the two turbinated, has towards its middle a slit, sometimes a foramen, opening into the maxillary sinuses; it is also in this meatus that open the anfractuous cavities of the turbinated bones.

The *ceiling*, or *roof*, limits forwards the superior meatus; it is hollowed, curved gutter-like shape towards its superior extremity, which extends as far as the cribriform plate of the ethmoid, that is, far behind the posterior border of the guttural opening. The straight portion of its course has for base the nasal bone; the curved portion is excavated

in the frontal and ethmoid bone—the former is wider than the second, which terminates into a very acute angle.

The *floor*, wider but shorter, has for base the incisive process of the small maxillary bone, the reflexed portion of the great maxillary and the palate; it forms the posterior wall of the inferior meatus. Altogether, in front of it, one will find the entrance of the canal of Jacobson, and the inferior opening of the lachrymal canal, pierced on the boundaries of the nostrils and nasal cavities.

Posterior Chamber of the Nasal Cavities.—Behind the posterior border of the naso pharyngeal opening, there is an elongated diverticulum, some five centimeters in length,* and situated between the internal plate of the frontal, the cribriform sheet of the ethmoid and the sphenoid. This space is filled by the ethmoidal volutes and the superior extremity of the anterior turbinated bone—the volutes are formed of bony sheets rolled upon themselves, and covered by the nasal mucous membrane. They are attached above upon the cribriform plate, their inferior extremity ends into cul de sac folded outwards to implant themselves upon the external plate of the bone.

Between the lateral masses of the ethmoid and the bony walls surrounding, there are narrow spaces where a somewhat considerable quantity of thick mucosities are always found.

Let us now consider the *septum* which separates the two nasal cavities. It is nothing else but the perpendicular lamella of the ethmoid, continued forward by a more or less ossified cartilage; almost always do we find a nucleus of ossification at the inferior and anterior part, on a level with the apex of the nasal bones. This nucleus, already wide in adults, extends with age, as often in old individuals, it unites above to the plate of the ethmoid, and thus is the septum almost entirely bony. The posterior border of the septum is rounded and implanted in the fissure of the vomer; the anterior rests upon the suture of the nasal bones; it expands on each side under these bones, which it separates from the mucous membrane of the roof. Its anterior extremity supports the cartilages of the nostrils. The faces are flat and form the internal walls of each nasal cavity; they present specially above a number of furrows for the divisions of the rich venous plexus of the mucous membrane.

The thickness of the perpendicular septum varies much; the median portion is always thinner than the anterior and posterior borders;

* Two inches.

of these two, the one corresponding to the vomer is the widest ; the thinnest part is at the union of the anterior and middle third.

Let us see now the *mucous membrane* of the nasal cavities, the *pituitary*, or *Schneiderian* membrane, as it is also named. It covers all the organs spoken of, is continued to the skin at the anterior, and with the pharyngeal mucous membrane at the posterior opening. After covering the median septum, it reflexes itself into the meatus, lays upon the turbinated bones, lines their internal cavities, and surrounds, on both surfaces, their spiral frame ; it even runs through the opening of the middle meatus, and lines the cavities of the sinuses. But in passing from one of these parts to another it undergoes important changes which we must know.

The mucous membrane of the perpendicular septum is thin all over. It is the thickest in the whole extent of the inferior extremity, where numerous mucous glands are found, with their orifices easily seen with the naked eye. Round the anterior and posterior borders, and near the inferior extremity, the mucous is much thinner, and shows plainly through its transparency the magnificent venous plexus underneath.

It is undoubtedly upon the cartilaginous portion of the turbinated bones that the pituitary membrane possesses its greatest thickness ; it may, indeed, be about three or four millimeters ; there, however, we find the same disposition as upon the perpendicular septum, the nearer the posterior chamber of the cavities the thinner it gets ; specially is it so upon the superior turbinated ; that of the inferior, looking towards the floor of the fossae has always a greater thickness.

The superior and middle meatus have a mucous membrane which is so thin that it has been sometimes taken for the periostéum.

In the inferior meatus, the membrane has about the same thickness as that of the inferior extremity of the turbinated ones. Its mobility is quite well marked.

The ophthalmic and nasal *arteries* carry the blood to the nasal cavities. The *veins* are more important than these blood-vessels ; they possess numerous anastomoses and are without valves—a fact which allow of their injection through a large venous trunk—and which can be easily seen on a longitudinal section of the head, as there always remains a certain quantity of blood in the plexus which may be pushed in all directions by pressure of the finger.

Upon the median cartilaginous septum the veins form a handsome median network, composed of large trunks almost parallel, anastomosed and superposed in three, four or five layers, towards which converge

smaller, and equally anastomosing vessels, coming from the borders of the organs. At the anterior part, below the portion of the mucous membrane which is covered with glands, the veins, by their disposition, reminds one of the admirable venous network of the palate.

This disposition is more marked yet upon the turbinated bones, and especially over the cartilaginous section. Veins are more numerous upon the roof, and the posterior part of the floor, than in all the other points of the meatus. Those of the inferior turbinated bone are parallel to its direction; in the superior, parallel to its extremity and middle part, but converge together and unite to the nasal vein in front of the small ethmoidal volutes. In all the points where the mucous membrane is thick and loose, the veins occupy the underneath connective tissue, or rather form a second layer under the dermis; this disposition is well marked on the level of the cartilages. Everywhere, on the contrary, where this membrane is thin, and adherent to tissues underneath, the venous canal is made at the expense of the dermis alone, if resting upon cartilage, and partly in the dermis and bone if this tissue is covered by the mucous membrane. This disposition is well shown in a dry specimen, where the papyraceous sheath of the turbinated bones is covered with furrows, indicating the course followed by the veins. From the examination of this rich vascular network, the gravity of some epistaxis can be appreciated.

The *lymphatics* form upon the olfactory mucous membrane a beautiful superficial network, whose trunks run to the submaxillary ganglions, and during inflammation of the pituitary membrane, the ganglions are seen swelling to such a size as to sometimes fill the submaxillary space entirely, or even extend beyond the branches of the maxillary bone.

This is specially marked in diseases of the lymphatic system. We all know that one of the pathognomonic symptoms of glanders is the tumefaction of the sub-lingual ganglions when the pituitary is itself inflamed or ulcerated. This becomes, therefore, a means of the appreciation of deep glanderous chancres, that may escape detection by examination of the nostrils.

The *nerves* come from the first and fifth pair—the first seem to be essentially for olfaction, as their name indicate, and though cases of congenital absence of olfactory nerves not suspected during life, had been observed. M. Claude Bernard reports an observation which proves that olfactory nerves can be missing though the sense of olfaction be present. They are undoubtedly replaced by nerves of the third pair, which act also as nerves of the organs of smell.

The following are the average measurements of the nasal cavities on subjects of medium size :

Length of cavities, from anterior to pharyngeal opening.....	220	Milli- meters.
“ of posterior opening.....	65	“
Height, from the vomer to nasal bones, posterior part of the cavity,	95	“
“ forward, perpendicularly from the nasal spine.....	75	“

Transversal cut at the first molar :

Width of inferior meatus.....	20	Milli- meters.
Height “ “	10	“
Distance from posterior turbinated to perpendicular septum...	7	“
“ “ superior “ “ “	6	“

Sections at the guttural opening :

Width of inferior meatus.....	32	Milli- meters.
Distance of inferior turbinated to perpendicular septum.....	11	“
“ superior “ “ “	2	“

DIFFERENCES.—The nasal cavities of the ox are less spacious than those of the horse. The posterior opening is more elongated than in the horse, but not so wide; the transversal dimension is also smaller; and as their boundary lines forward and behind are far apart superiorly, their posterior chamber is about twice as large as the entrance of the cavities.

The turbinated bones are not disposed as in the horse. Truly speaking, there are three, as the ethmoidal volute is very large, and occupies posteriorly a space between the anterior and posterior turbinated.

This part of the ethmoid is named the *ethmoidal antrum*. The other turbinated bones have also a different form—the ethmoidal is very small, elongated, and attached to the bone proper of the nose; the maxillary turbinated is, on the contrary, much developed, and forms alone nearly the three quarters of the external face of the cavities; it is constituted by two bony lamella rolled in diverse directions, that is that rising upon the longitudinal axis of the organ, the anterior lamella is rolled forward, the posterior backwards. The bony frame of this turbinated bone is also much longer than that of the ethmoidal; its inferior extremity, entirely cartilaginous, extends down to the nostrils, and forms the frame of the internal wing. It results from this disposition that the position and form of the meatus are not like those of the horse,—the superior is, indeed, very small, and mixed near the nostrils with the middle one, which, quite wide forward, is very narrow behind,

and occupies the line corresponding to the union of the anterior and second quarter of the cavities. The posterior or inferior meatus is very large, and united with that of the opposite side in consequence of the disposition of the vomer, which, instead of resting upon the palate bone, as in the horse, unite to the floor of the nasal cavities only towards the inferior half of the maxillary bone. The floor of the cavities has, therefore, in the ox, a peculiar disposition, which gives it a bifurcated aspect forward.

The cartilaginous septum which separates the two cavities is thick, and possesses about the same width forward as backward, though its height is very great posteriorly—conformation which is a consequence of the special disposition of the vomer.

The mucous of the nasal cavities is much like that of the horse—like it, its thickness varies; very thin upon the bony part of the turbinated, it becomes very thick on the cartilaginous portions, as well as in the whole extent of the floor. The blood vessels are extremely numerous, and form a handsome network when artificially injected.

The nasal cavities of the *sheep*, *goat* and *swine* have much analogy with those of the ox; their length is in direct proportion to that of the face.

In *carnivorous* the nasal cavities are rather smaller, but their posterior opening is wide. The turbinated bones have a peculiar form. The ethmoid in these animals is very large, and the ossification of its middle septum extends always far down. The vomer has a special disposition; its two lamellæ are turned on each side so as to limitate, specially behind, a round or oval space, perfectly free, but whose walls are also formed by the floor of the cavities and the internal face of the maxillary bone. This double septum of the vomer divides each nasal cavity in two parts, one superior or anterior, which can be considered as the posterior chamber, one part posterior, the only opening allowing the passage of atmospheric air.

As to the inferior region of the cavities, it presents, as in other animals, the two turbinated separated by a middle meatus; the anterior turbinate or ethmoidal is very small; the maxillary, extremely complicated, is formed by *papyraceous* lamellæ rolled upon themselves, resembling the lateral masses of the ethmoid; its anterior extremity, single and cartilaginous, extends to the external wing of the nose. The superior meatus goes to the posterior chamber of the cavities, the inferior terminates directly into the special space situated under the lateral lamella of the

vomer. The middle meatus bends itself backwards beyond the maxillary turbinate, and terminates into the posterior opening.

The complicated disposition of the nasal cavities of the dog is in proportion to the development of the olfactory powers.

SECTION 4.—TIP OF THE NOSE.

This region is, indeed, but a portion of the superior lip, which, from its special use and organization, deserves a peculiar notice. It represents a quadrilateral surface, slightly hollowed in its middle; its excessive mobility allows the animal to alter its form in many different ways; it is the true organ of feeling of the solipeds.

The skin, covered with short, rough hairs, intermixed with others long, big, true tentacles, is very adherent to the sub-muscular layer constituted by the *middle anterior*, the fibres of the small super-maxillo-nasalis* and of the pyramidalis. The terminal aponeurosis of the great super-maxillo-labialis† separate these fibres from the skin.

The tip of the nose is a part excessively rich with blood-vessels and nerves. The arterial divisions are the superior coronary and inferior terminal branches of the glosso-facial, with the incisive artery formed by the anastomose of the two palatine arteries coming out of the incisive foramen. The nerves come from the superior maxillary: they run in large fasciculi towards the tip of the nose, hence their divisions can be followed to the internal face of the skin where they lose themselves. No part of the body possesses as much nerves as that region, and for this reason it is the most sensitive. Advantage being taken of that condition for the application of various means of restraint, which, by the pain they inflict upon animals, stupify them and render them less sensitive to the performance of simple operations.

SECTION 5.—SUPERIOR LABIAL REGION.

It is formed by the superior lip, movable organ, circumscribing above the buccal opening, having a certain thickness, extending in front and upon the sides of the incisive arch and covered by two teguments; one external the skin, the other internal the labial mucous membrane, between which are found muscles, blood vessels and nerves.

The external surface of the superior lip is convex, covered with short and fine hairs, mixed up with long and coarse ones; the internal face is concave, smooth, always lubricated with secretion of the labial glands, which they pour over that portion of the mucous membrane.

* *Nasalis brevis labii superioris* of Percivall.

† *Nasalis longus labii superioris* of Percivall.

The skin of the lip is strongly adherent to the muscles underneath. Below the skin one finds the terminal aponeurosis of the tendons of the two super-maxillo-labialis and muscles, two aponeurosis losing itself in the obsicularis ovis.

The muscular layer between the teguments is formed by the superior portions of the orbicularis and the terminal insertion of the super-naso-labialis* and great super-maxillo-nasalis.† Between these muscles and the mucous, are found the muscular fasciculi, formed by the middle intermediate anterior muscle and a layer of yellowish small granules or glandular lobules, situated in the muscles or in the thickness of the mucous membrane.

The blood-vessels are terminal branches of the superior coronary, anostomosing with the division of the incisive artery.

The nerves are furnished through the facial to the muscles, by the superior maxillary to the skin and mucous membrane.

DIFFERENCES.—In bovines, the superior lip, called the muzzle, is less movable than in the horse; it is thicker and wider. The anterior face is hairless, or presents only a few, very fine but with large bulbs. The skin, then, has a peculiar aspect; it is rough, as if covered with small warts. It is hollowed in different directions by small fissures upon which numerous little elevations are found; these are pierced in their centre by a little orifice, excretory opening of racemous glands, secreting abundantly a peculiar liquid always found in health over that region; and, therefore, where this is dry it is an important sign of sickness. The thickness of the glandular layer measures about one or one and a half centimeters.‡ Between the glands are seen masses of sudoriparous glands and the voluminous bulbs of some hairs, these being always accompanied with very large sebaceous glands.

The superior lips of the *goat* and *sheep* is divided by a deep fissure into two parts.

That of the *pig* but little distinct from the *snout*, ends by an anterior point.

The lips of *carnivorous* are hairy, and furnished with *tentacles*. There exists also, as in the *goat*, a vertical fissure.

* Levator labii superioris alverque nasi of Percivall.

† Dilatator naris lateralis of Percivall.

‡ From about half to three-quarters of an inch.

EDITORIAL.

FALSE PROFESSIONAL REPRESENTATION.

Our people are ignorant of the importance of Veterinary medicine ; our science is yet, and will be for years to come, in a low social standing. These are, undoubtedly, the impressions that the ordinary practitioner will put to himself when thinking of the condition of the profession in the United States. That there is much truth in these sad words no one will deny, but we think that they are exaggerated.

No, we do not believe our people entirely ignorant of our usefulness or of our importance. No, the science will not for years to come remain at a low social standing.

For a number of years our professional position has placed us in the condition to see, watch and observe what was the true standard and appreciation of the Veterinarian by Americans, and we are satisfied that though it has made only small progress, though the improvement has been slow, still there is no doubt an elevation in the estimation of the people of the Veterinarian, and the gentleman of education receives now nearly a full and proper recognition from its employers.

To the establishment of Veterinary schools we are certain this is due, and to the sending off of *well deserved graduates* we attribute much of the improved condition of the profession. In fact the time is fast coming when the necessity of a diploma, or of a lawful credential, will be indispensable to one who intends practicing. But we feel at the same time our duty to protect, from the beginning, the too confident stock owner against a class of impostors which are likely to rise, who, in fact, are already in existence—to a class of individuals who, too lazy or too ignorant to complete their studies, or who have been rejected at their final examination, at the time of graduation represent themselves as students, as graduates of such college, or of such a school. We have heard people say, “ Mr. So-and-so practiced in our part of the country. He is one of your graduates, one of your pupils ;” and often it has turned out that the person referred to has been either a rejected candidate for graduation, a student of one year’s standing, or, as in a recent case, one of whom we know nothing about.

Now, we might excuse a person to employ Mr. So-and-so, who says that he is a graduate of the Royal Veterinary College, of Dub-

lin (?), or is a pupil-graduate of Prof. (?) Ferguson, of England, or student of a Homeopathic Veterinary College (?), basing our excuse on the fact that it may be of some difficulty to ascertain that there is no such a thing as a Veterinary College in Dublin, that Prof. (?) Ferguson, of England, has no right that we know of to grant Veterinary diplomas, and that there is no Veterinary school where homeopathic Veterinary medicine is taught; but the same does not hold good when the case relates to an American degree, as Veterinary schools are but few yet on our continent, and it is very easy to ascertain the validity of the claimant's credentials; and not only do we advise our horse and cattle owners to satisfy themselves of the truth regarding the graduation from such or such an American school, but we do think it is the duty of any and all members of the profession to prosecute any individual who so falsely represents himself as one of the members of the Veterinary profession.

We received lately a letter which gives a reason for the above remarks. A certain gentleman, representing himself "*as a graduate of 'YOUR' College, has been successfully practicing as a Veterinary surgeon, winning for himself a VERY large practice, and being a credit to the school, though only an assumed graduate. In fact, he has raised the standard of the American schools in the mind of the public in the vicinity.*"

Up to there all is bright; the gentleman flies under false colors; he has obtained a very large practice; he has raised the standard of the American schools. Still, he does not value them as much as the public does, and though his practice must have brought him means, he does not wish to relieve himself of this cloak of imposture until—Let us continue the letter: "*About a year ago a graduate of Toronto School came and commenced practice . . . and to increase it has lodged against the other (the former) information for unlawfully annexing V.S. to his name.*" And now comes the supposed means of obtaining remedy—"You are the only person that can help him over this difficulty by KINDLY sending him a SEEMING duplicate of a degree which he appeared to have taken in 1870—he pretends to have lost the original—for which he will be willing to pay you any reasonable amount."

Of course no notice was taken of the letter as far as an answer was concerned, and it would have been thrown into the waste basket as merely the conclusion of a shameful comedy, but the end of the letter, and the name attached to it, were so surprising to us that we could not refrain from saying a word of advice to the writer—"I assure you I would not ask you to do this if Mr. X. was not competent to practice Vet-

erinary Surgery; and if it is of any use, he can get all the medical men of the place to certify to his abilities.

“Yours,

“Dr. ——— M. R. C. S. L., R. C. P. Edinb.”

Dr. ——— M. R. C. S. L., R. C. P. Edinb., has made a sad mistake as a gentleman and a professional man; and let him repair it by advising his friend to enter a Veterinary School, which he never has done before, and obtain by his abilities, if he can, the degree which he needs so much now, or to drop his mask and keep on his successful practice under the proper footing, that of self education. There will be less shame, more pride perhaps, and it will not cost him *any reasonable amount*.

To prevent the possibility of similar imposition we publish to-day a list of the graduates of the Veterinary Schools, of N. Y. City since 1864, and will gladly insert in our next the list of the graduates of any other regular school which may be forwarded to us, with hope that some of our exchanges will publish the same list, and thus protect our country people.

MICROSCOPIC CONDITION OF THE BLOOD.

The microscopic condition of the blood in different forms of diseases has been lately so much the subject of scientific observation and studies, and is yet so much investigated by modern physiologists and pathologists, that the contribution sent to us for publication in the REVIEW, by Mr. F. S. Billings, from Berlin, will be found of much interest by our readers.

Illustrated by a photograph engraving, the different microscopic living bodies, represented by various species of bacteria, which are to be observed in the blood of an animal which has died from septicaemic poison, anthrax, rabies, puerperal fever, rinderpest, glanders, etc., are illustrated, and will be easily recognized by the observer under the microscope.

Whether these organisms are the causes or the effects of diseases (at least for some), is a point which yet remains under European discussion. M. Pasteur, the illustrated investigator, has already stated that anthrax is due to the presence of the bacteria known as *bacillus anthracis*, and in a recent paper before the Academie des Sciences in Paris, has refuted the experiments made by Mr. P. Bert, which had a

tendency to prove that anthrax was not due to the presence of the bacteria.

We take advantage of the articles found in our exchanges upon this question to present our readers with the result of the experiments of both Messrs. Bert and Pasteur.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The Fourteenth Anniversary Meeting of this Association will take place on the third Tuesday of this month, the 18th inst., and will be held at the American Veterinary College. These annual gatherings have been always well attended, and as some important actions relating to Veterinary education, and other matters connected with the profession will be discussed, there is no doubt that a good number of the members of the Association will meet together on that day. We hear of a project being started for the formation of an Alumni Society of the American Veterinary College. This would be a good opportunity to lay its foundation. The first of its kind on this continent, much good might be derived from it socially and professionally.

EXTRACTS FROM FOREIGN JOURNALS.

BY A. LIAUTARD, M. D. V. S.

ON THE IDENTITY OF ANTHRAX IN ALL THE SPECIES OF DOMESTIC ANIMALS.

By M. H. BOULEY, Member of the Institute, Etc.*

I ask of the Academy the permission to present in this paper, on some points, the character of the anthrax fever of domestic animals, so as to show that this popular name, preserved in science because it is the expression of a physical fact, very characteristic and constant—the deep, dark coloration of the blood—this name, I say, applies not only to a number of different diseases, collected under a common name, but to a single disease, identical to itself in all the species, and already well identified by clinical observation.

* Extract from the Minutes of the Academie des Sciences, of Paris, May 7th, 1877.

This paper will give me the opportunity to present to M. Pasteur—taking the point of view of clinic—some of the difficulties of the complex problem, the experimental solution of which he proposed to settle.

From the end of the last century, direct observation had already established the fact that, under the diversity of the symptomatic forms that the disease may assume in the different species, and in each one individually, according to the organisms which it may attack, anthrax constituted a morbid state, always identical by itself, and that, consequently, under its name a certain number of diseases, apparently distinct, ought to be classified, though, in the nosography established by old practitioners they had received very different denominations, exclusively based upon the differences of symptoms under which the unity of the essential disease had not been recognized. As many pre-eminent symptoms by which anthrax may exhibit itself, even upon individual subjects, as many names were given, so as to imply the existence of as many distinct diseases.

To Chabert, the second Director of the Alfort School, is due the merit to have detected the character of family which existed between them all, through the diversity of their external appearances; and to have observed that, in fact, the *glossanthrax*, *tongue-evil*, *black quarter*, *black leg*, *splenic apoplexy*, constituted but one disease, one in all, which could give rise to various symptoms according to the region where local lesions would manifest themselves. Indeed, one may understand that when the carbuncular congestion takes place in the pharynx, and is exhibited by symptoms of strangulation, which brought to that form of malady a special name, its characters would differ much from those it would present when the diseased group would be located inside of the thigh or in front of the chest.

For Chabert, and many after him following its teachings, the unity of anthrax, in all the species and in all individuals, under the diversity of its forms, was the result of the constant and common existence of a certain number of symptoms and anatomical lesions.

The suddenness of its apparition, its rapid march, its almost inevitable fatal termination, these are the first common characteristics of all carbuncular affections—characteristics which may be unheeded when anthrax is only sporadic, but which become very significant when it is enzootic in localities where *telluric* conditions exist. In these cases, the repetition and the rapidity of its attacks are characters by which it is easily recognized under whatever form it may present itself.

There are species, as the ovine, which offers so little resisting

powers to carbunculous infection, that it suffices in a few hours for the disease to run its different stages, and to end by death, without giving time to any local manifestation, such as tumors or cutaneous eruptions, to develop themselves.

In others, anthrax may also assume such intense form of general troubles that no local evolution can take place. But there are cases, especially in the equine and bovine families, where, to the general phenomena of anthrax, local symptoms are added, which establish between it and eruptive diseases a certain resemblance. These phenomena consist in external phlegmonous developments in different regions of the body, under the shape of peculiar tumors, which ordinarily increase very rapidly, and soon become crepitant and fade away.

It is remarkable, that from the moment these carbuncular tumors make their appearance, the febrile state diminishes, and a certain improvement is observed, as if a removal of the morbid elements had taken place from the blood by which it was saturated. There is some possibility, then, that the patient may recover, either that by potential or actual cauterization the carbuncular tumors be destroyed, or, what is rare but possible, that they be eliminated by a natural process.

But when the tumor keeps on its natural progress, or—and that too often, though the most energetic means had been employed to contest its development—if the febrile conditions temporarily suspended should rise again, then the disease assumes again a rapid course which soon ends by death. It is rare to see, through critical phenomena towards the intestinal or urinary apparatuses, the disease assumes a favorable termination.

This series of symptoms define very plainly these diseases or, to speak better, the anthrax fever, and gives it a distinctive and characteristic form.

But there is another fact more significant yet, it is the contagion which gives to anthrax its character of unity, and places it as a morbid species completely distinct from all other diseases with which it might have some symptomatic resemblance, as, for instance, the general diseases produced by a putrid infection. Anthrax is transmissible by inoculation to sheep, horse, cattle, swine, even dog, though with more difficulty, and with too much certainty to man.

It is not only through inoculation that it can be transmitted. Clinical and experimental facts prove its possible transmission through the atmosphere to herbivorous animals of ovine, bovine and equine species, even to swine. No doubt contagion through this medium is not so cer-

tain in its effects, and is less constant than by inoculation. Therefore, anthrax is not susceptible, like truly infectious diseases, to extend itself to long distances from its points of origin, increasing in strength as it travels on. On the contrary.

But if its infectious properties are weak and diminish as it goes on, they exist nevertheless, and must be taken in consideration to the point of view of practice, and of the interpretation of facts.

Anthrax leaves in the cadavers, in all species, uniform and constant marks which though not exclusive to it, are not without significance in the localities where the disease exists, and which are sufficient to characterize it objectively, and to allow to affirm its existence.

These marks, left upon the cadavers, are in first line the black color and diffuent conditions of the blood, which has the appearance of melted pitch. All the tissues show by their darkened shades, and by the dark spots which are found even in the deepest, this double character of the blood, its color and diffuency. They have besides become very putrescible. But if all the tissues carry with them this *carbuncular impression*, there are some that can be considered as selected spots of the anthracid lesions—these are the spleen and the lymphatic glands.

The frequency of carbuncular congestion upon the spleen is such that Tessier took this microscopical character as foundation to give the disease in sheep the name of *splenic apoplexy*,* under which it is known to-day. But this character is not exclusive to the anthrax of sheep; it is found also in other species, and often enough to be authorized to consider it as one of the attributes of anthrax. In all species, indeed, the spleen of animals which have died of anthrax is considerably increased in size, irregularly embossed on its surface, and its softened substance transformed into a kind of mud of a dark color, resembling India ink. It is only by exception that this character is missing.

For the lymphatic glands, and specially those of the abdomen, they are tumefied, by a bloody congestion of their tissue, and an infiltration of their network by a considerable quantity of citrine serosity. The cellular tissue surrounding them is the seat of the same infiltration.

Such is the general character of anthrax, observed and studied with the means of the simple observation. From this, it results, that clinical facts, far from being contradictory to those given by perfected observation, are, on the contrary, in perfect accord with them. The discovery of the parasitic nature of anthrax confirms, indeed, what the old observation had learned upon the unity of this disease in all the species, and gives its explanation in exposing the active being from which anthrax

* Sang de rate.

proceeds, in placing it at work in the different organisms, and making it produce its effects. That is one of the most important facts to the point of view of all contagions, as what is exposed for one authorizes us to admit, by analogy of manifestation, that in the others the conditions of development are identical.

Admitting that contagion is the most essential distinctive characteristic of anthrax, and knowing the agent-instrument of its transmission, M. Pasteur, it seems to me, has given a perfectly exact definition of the disease, where he defined it by this agent itself, the bacteridie, which is found in all species identical to itself, by the properties it possesses, from whatever species it may proceed, to develop in all anthrax, characterized in each one respectively by its proper symptomatic conditions.

Now that, thanks to the researches of M. Davaine, who, the first, as M. Pasteur has so well shown, has discovered the corpuscles of anthrax, and has assigned to them their duty as exclusive agents of virulency—thanks, also, to the labors of M. Koch, of Breslau, and at last to those of M. Pasteur—now, I say, that the carbunculous virus has taken form, that it can be seen and put to its work of fecundation in the vases where it is cultivated, important researches remain to be made to give the interpretation of all the facts met in practice.

If, as proved by the observation, anthrax finds the conditions of its development in damp localities, when excessive hot weather, following heavy rains, give rise to fermentation in stagnant water, marshy lands, etc., it is probable that these conditions are favorable to the reproduction of the bacteridies from which anthrax proceeds, and that animals living in these localities absorb them, either in perfect state or in the state of spores, and are thus infected. The etiology of anthrax will be complete only when microscopic researches made in the infecting localities will have shown these carbunculous bacteridies there, and shown them at work in the development of these local epizootics that old practice named spontaneous, ignorant as it was, of the condition of their genesis.

It has been said in the above symptomatic exposé that anthrax, in one of its forms, in the large species, showed itself by external congestion, giving rise to tumors, after the apparition of which the general symptoms would improve and even disappear, if these tumors became spontaneously the seat of an expulsive inflammation, or if they were destroyed by deep cauterization.

This practical fact differs much from the experiments of inoculation, which proves that it requires but a very small drop of liquid loaded

with the vibrios of anthrax to produce the general infection of the body followed by consequences most unavoidably fatal. How, in an organism infected by natural absorption, and in which the general infection is arrested by an intense symptomatic fever, can all the bacteridies, at a given time, collect together in the external regions, so that, if they are destroyed at these points, the whole organism is freed of them and health returns? Here is a fact which agrees with difficulty with the activity of the reproduction that experiments have proved to be one of the attributes of the bacteridies.

Here is another fact, whose interpretation is not without being embarrassing, or, at least, seems so. Experience proves that when a flock of animals emigrates from localities where anthrax prevails, to others where the condition of its development do not exist, the number of the sick gradually diminishes, and soon the disease disappears. The influence of the surroundings seem, then, necessary from these facts, so that the bacteridies naturally introduced into the organism of the sheep subsist in them, and give rise to the disease which is the expression of the manifestation of their special activity; and, nevertheless, bacteridies inoculated to the sheep, outside the influence of these surroundings, do not remain inactive; they produce their effects, even with an extreme intensity. Why such difference?

The question of the infection requires also further examination. Anthrax is transmissible at a distance; it can rise from the trenches where carbuncular cadavers are buried. How does that transportation take place?

If I present these different questions, it is not that I desire to protest against the correctness of the conclusions derived from the experiments of the laboratory. I believe that they throw a great light upon the nature of anthrax, and upon the conditions of its manifestations. I believe, also, that to the general point of view of contagious diseases, they are of principal importance. When the subject of anthrax, whose virus is to-day recognized and known, will have received all the solutions that the problem of practice presents, this complete study of a disease so powerfully virulent and, in a certain measure, infectious, will not fail to throw light also upon the other contagious diseases.

For this reason I have thought proper to call attention to these different points. The nature of anthrax being now known by the experiments of the laboratory, the contradictions between their results and the practical facts cannot be fundamental, certainly they are so only in appearance. Subsequent researches will not fail to unite them, and

personally I have the greatest confidence that M. Pasteur, with the certainty of its judgment and of its methods, will succeed in solving all the difficulties of the complicated problem whose solution he has undertaken.

THE USE OF OXYGEN AT HIGH PRESSURE AS MEANS OF
PHYSIOLOGICAL INVESTIGATION—VENOMS AND VIRUS.

BY M. P. BERT.*

Some years ago, I announced that oxygen at high pressure produces the rapid death of all living bodies, or to specify better of all anatomic elements, whether isolated as it happens for the blood corpuscles and microscopic bodies, or grouped as the constitutive tissues of complex organisms. Specially observing the numerous phenomena known as *fermentation*, I established that all those whose condition of development was the presence of a living body (putrefaction, acetification of wine, alcoholic fermentation), were definitively arrested by the action, even transitory, of compressed oxygen, while all fermentations due to the action of a dissolved matter (diastasis, pancreatine, myrosine, emulsine,) resist perfectly that influence.

This new method of analysis, I already stated, may be usefully applied to the study of physiological problems. The carbunculous blood, that of the infectious diseases, the pathological fluids, virus, venoms, do they owe their action to corpuscles analogous to the true ferments, or to an alteration of the liquids acting as a diastasic ferment? The results observed after the sojourn in compressed oxygen will throw on this question new light.

Some of these results I beg to present to-day to the Academie.

Ripening and Mellowing of Fruits.—Experience proves that after a stay of several hours in compressed oxygen, fruits whose ripening can become perfect when off the tree, are indefinitely preserved, but ceased the process of ripening; while those which are susceptible of mellowing undergo this process even when in compressed oxygen, and this faster than when exposed to ordinary free atmospherical air. It is thus demonstrated 1st. That ripening is the result of a cellular development; 2d. That mellowing is due either to the action of a soluble ferment, at first developed by the cells of the fruit, or to a direct oxydation of peculiar substances.

* Extract from the Comptes rendus de l'Academie des Sciences, Paris, May 21st, 1877.

VENOMS.—I have experimented upon the venom of the scorpio. This either liquid, dry or redissolved in water, resists perfectly the action of compressed oxygen. We know, anyhow, that venoms owe their action to chemical substances analagous to vegetable alcaloid.

VIRUS.—1st. *Vaccine and Glanders*.—The study of virus is evidently much more interesting. I begin it by vaccine and glanders. Fresh vaccinal liquid exposed for more than a week to the influence of oxygen to the highest pressure (corresponding to about 50 atmospheres of air), had kept all its power. Pus from glanders, placed in the same condition, killed rapidly horses inoculated with it. More than that, compressed oxygen having destroyed all the living agents, which would give rise to their putrefaction, these virus have been preserved in full activity for a long time, in the middle of the heat of summer.

Consequently, neither glanders nor vaccine owe their virulent properties to living beings or cells; that there is an agent which by this character approaches the diastatic substances.

This conclusion does not seem to contradict with the experiments by which M. Chauveau proved that the virulent action of the virus of vaccine or glanders exists in the corpuscles they hold in suspension.

It is possible that the toxic produce be in that peculiar state of precipitation; or that, though dissolved, it impregnates exclusively these little bodies, as the hematocristalline of the blood, so soluble in the serum, attaches itself exclusively upon the globules.

But it is certain that these corpuscles—vehicles of the virulency—are no living bodies, and that they do not act as such in the organisms where they are inoculated.

ANTHRAX.—From the investigations of M. Davaine, pathologists have accepted the idea that anthrax is due to the development in the blood of myriads of little bodies named *bacteridies*; there would be a kind of microparasitic disease, or, better, a kind of ultra-sanguineous fermentation producing death.

But the use of compressed oxygen does not seem to sanction this.

Indeed, carbuncular blood, placed in thin layers to elevated pressure of oxygen, had preserved its virulency, as manifested by the death, for several successive generations, of the Guinea pigs which were inoculated; but the blood of these animals did not contain any bacteridies.*

But before stopping to conclusions in such a matter, the subject of so much controversy, I desired to try an entirely different method, and

* On account of the difficulty in obtaining the blood of animals who had died of anthrax, this experiment was made only once.

proceeded as follows : Blood from carbunculous animals loaded with bacteridies being sent to me by M. Trasbot, of Alfort, I added to it, drop by drop and carefully, absolute alcohol, so as to increase the volume of the original liquid to four times its quantity ; I filtered the thick mass and dried quick in a vacuum the coagulum well washed with alcohol. A small piece of this dry matter, introduced under the skin of a Guinea pig, killed it in less than a day ; its blood produced death in another, and even in a dog ; and that evident virulency existed for several successive generations, the Guinea pig being, so to speak, used as soil for the cultivation of the virus, and the dog as the means of testing it : and, however, this virulent blood did not contain bacteridies since the mixture with the alcohol.

I will go further: the alcoholic precipitate being washed off with water, I found that this liquid carries with it the virulent principle, which can be precipitated again by a new addition of alcohol. But I must say that these successive washings diminish the intensity of the virus, as the last one failed to kill dogs, and even Guinea pigs did not succumb beyond the third generation.

From these experiments we must conclude: that it exists in the carbunculous blood a toxic and virulent element, which resists the action of compressed oxygen and of alcohol, and that it can be isolated like the other diastasis. This is an important fact upon which I desire to call attention. Now, is this element condensed upon the bacteridies themselves? Was it formed at the onset, secreted, so to speak, by the bacteridies, and should it have a property, yet unknown to produce of secretion, that of multiplying upon the living body? Would its virulency be something else than the bacteridies, so that the carbunculous blood would possess two causes of death? These are so many questions that I am studying.

REMARKS RELATING TO THE EXPERIMENTS OF M. BERT UPON ANTHRAX.

BY C. DAVAINÉ.*

From recent observations of M. Bert, anthrax may exist and spread without the presence of the filiform bodies that I have named bacteridies, which then would not be the virulent agent of the disease.

To prove such an exceptional fact, I think it would have been necessary to show that the blood deprived of bacteridies had all the other known properties of carbunculous blood.

* Presented by M. Pasteur to the Académie des Sciences, Paris, June 4th, 1877.

This proof was so much more necessary that numerous discussions had already taken place, even before the Academie, because experimenters had always mistaken anthrax with another contagious affection—septicaemia.

M. Bert has made two different experiments, one with compressed oxygen, the other with absolute alcohol. Not having repeated the first, I cannot say anything of it; but the second I have made several times over, some years ago, and have obtained results entirely opposite to those of M. Bert. When I began investigation on these questions, I went to work like M. Bert coagulating the blood with alcohol and introducing the *magma* under the skin. The animals died, not of anthrax, but of septicaemia.

After finding that one millionth of a drop of carbunculous blood was sufficient to kill a Guinea pig, I made the two following experiments (9th of August, 1873):

1st. I took some blood of an animal who had recently died with anthrax, consequently free of all putrefaction, and mixed it with 1,000 parts of water. A part of this fluid was then mixed in 10 parts of ordinary alcohol. After half an hour, with the needle of Pravaz, I injected one drop of this mixture under the skin of a Guinea pig. He continued to enjoy a perfect health.

2d. A second experiment gave the same result, though the contact of the virulent liquid with the alcohol did not last more than two minutes.

Still in these two experiments, one ten thousandth of a drop of carbunculous blood having been injected, both animals ought to have died if the virus had not been destroyed.

Therefore, if alcohol destroys the virus of carbunculous affection, M. Bert has not produced this disease in the animals he successively inoculated. But the results he has obtained are explained by the method of inoculation he had employed, and to the dangers of which I have already called attention.

When a putrescible substance, carbunculous or not, is introduced under the skin by a wound which remains open, most generally the animal dies with septicaemia, contagious disease like anthrax, but not identical to it and different from it by one of its distinctive characters—the absence of bacteridies.

The same cause of error has existed in the first experiment of M. Bert. Still I must repeat in this occasion that the degree of septicity of the putrified blood is not in proportion to the intensity of its odor. In some conditions this odor may be slight, and still the virulency ex-

cessive. I have seen, in a certain number of experiments, healthy blood, placed in not compressed oxygen, take a peculiar odor which was not that of putrefaction, and still when inoculated in quantity smaller than a drop, to kill rapidly by septiaemia.

Then, if this blood thus placed in oxygen had been carbunculous, as putrefaction destroys its special virulency, as I proved it, one would have produced by inoculation with it, not anthrax, but septiaemia.

I mention these results, not to come to any conclusion of the not compressed to the compressed oxygen, but to call attention to facts which may have some importance to the point of view of the effects of compressed oxygen upon carbunculous blood.

I will now add a few words relating to a question of Mr. Bouley upon the pathogeny of some forms of anthrax diseases.

The observations and the experiments I have made upon this subject have allowed me to establish that the *pustula maligna* form, almost special to man, is produced by the introduction of the virus under the epidermis, in the reti mucosum of the skin, and that the sub-cutaneous tumors, so common in horses, are produced by the introduction under the teguments of a fraction of a drop of infected blood. I have shown how flies may, in the country, become the true agents of these two modes of inoculation.

Carbunculous fever without external manifestation appears, when substances impregnated with virus are introduced in internal organs. As for the tumors, called *critical*, which develop themselves during that febrile disease, and as an effort of the medicating nature which carries the virus under the teguments so as to expel it, I have never observed anything like it. In my opinion, it is an old error, due to a false interpretation of the course of the disease. Indeed, the bacteridies, motionless, cannot spontaneously quit the organs to go in a fixed region of the body; and, besides, the economy of the patient cannot collect together these millions of small beings located all over, and direct them towards a special point of the organism.

To accept such a result, we must suppose a kind of filtration, and of a special circulation inadmissible to physiology; and to effect that it seems to me certain that these, so-called, *critical* tumors were primitive, and not consecutive to the invasion of the disease; they are formed where the virus has been introduced from outside, and it is because they remain yet localized that the surgeon will sometimes cure them.

REPORT OF CASES.

TYMPANITIS TREATED BY PUNCTURE.

On the 1st of August, at 4 P. M., I was called to see a sorrel horse, 8 years old, one of a team used in an ice wagon. I found he had been sick about two hours, and two antispasmodic draughts had already been given, but he had now commenced to swell rapidly. I was, therefore, sent for. I administered spt. am. ar., sodæ sulphis a. a. oz. j.; also gave enemas occasionally. I repeated the medicine; still no improvement; I then gave calx chlorin, oz. ss. in solution. 6 P. M.—Pulse, 75; very feeble; mucous membranes very much congested, and of a purple hue; abdomen distended to its utmost capacity; respiration performed with great difficulty; body and extremities covered with a cold perspiration; mouth clammy; walking round his box, he now threw himself down and rolled over in one corner of his box; he struggled, but was unable to get up; I had him pulled out, and lifted him up; he now stood still for ten minutes, gasping for breath; the tongue and mouth almost black; he again commenced wandering aimlessly around the box. I saw, unless he had immediate relief, it would be too late; I therefore decided to use the trocar. I had him led into the corner of the box; I chose the right side; the most prominent part was six inches to the antero-inferior part of the anterior spine of the ilium; I did not put the animal under any restraint, or divide the skin, but drove the trocar into the distended intestine; as soon as I withdrew the trocar the gas rushed out with a hissing noise; in about two minutes the abdomen resumed its natural size; I then withdrew the cannula; the horse did not move during the operation, but gave a sigh of relief as the gas escaped. I now had him well hand-rubbed and blanketed; also gave him a diffusible stimulant; he did not move a step in six hours; he then rallied and took a mash; being so much exhausted, it required a week's rest before he was able to resume work; the wound healed by the first intention and he is as well as ever.

C. BURDEN, D. V. S.

STATISTICS.

STATISTICAL REPORT,

Regarding *Malleus humidus et farciminosus* in the Kingdom of Prussia, for the last three-quarters of the year 1876, from the Report of the "Technischen Deputation für das Veterinairwesen," by Virchow, in his Archiv, Vol. 67, No. 2.

	2 quarters.	3d quarter.	4th quarter.
Number of invested districts.....	119	202	180
“ “ villages.....	406	451	338
“ “ farms or stables..	457	552	416
“ horses in invested places..	4,235	4,918	3,505
“ diseased.....	949	878	592
“ which died.....	47	45	21
“ “ were officially killed.	736	691	436
“ “ “ killed by owners	89	76	79

From the above, it will be seen that 2,419 horses were reported as diseased, and that from this number died..... 113
 Officially killed..... 1,863
 Killed by owners, without compulsion..... 244

Total..... 2,220

Virchow says, in his remarks, that the above is a striking proof of the carrying out of the new law relating to contagious diseases in animals, and that it is also a comforting assurance of a lessening of one cause of danger to human life. It will be observed that there is a decrease in the number reported and killed each quarter, and this decrease must be accredited to the executive force of our Veterinary police system. Regarding the contagium of this disease, Virchow says, that I have held to the opinion that the contagium of glanders is of a fixed nature. The conception of its volatile nature is widely outspread, and many facts are, it must be acknowledged, in support of such an idea. But the above table confirms him in the view of the fixidity of the contagium, a view which he has held for a long time (Spec. Path. u Thrapic Erlaugen, 1855, Vol. 2, Page 410), viz.: "that the validity of the contagium of glanders has not been sufficiently proven."

F. S. B.

LIST OF GRADUATES

OF VETERINARY MEDICINE, FROM SCHOOLS LOCATED IN NEW YORK CITY.

J. L. Robertson, M. D.,	....	New York City, N. Y.	....	Graduated 1867.
E. Nostrand	.....	"	"	"
Ch. Burden	.....	"	"	1868.
L. T. Bell	.....	Brooklyn,	"	1871.
Pet. Nostrand	.....	Williamsburg,	"	"
R. W. Finlay	.....	Harlem,	"	1873.
Peter Peters	.....	Richmond, Va.	"	"
J. D. Hopkins	.....	New York City, N. Y.	"	"
C. Michener	.....	Carversville, Pa.	"	1874.
C. H. Stocker	.....	Salem, Mass.	"	"
J. Myers, Jr.	.....	Cincinnati, Ohio	"	"
Ph. Fernsler	.....	Lebanon, Pa.	"	"
*B. Herr	.....	Martinsville, Pa.	"	"
W. Dougherty	.....	Baltimore, Md.	"	"
E. Traver	.....	Rhinebeck, N. Y.	"	1875.
J. B. Cosgrove	.....	Worcester, Mass.	"	"
R. P. Blakely	.....	Syracuse, N. Y.	"	"
Theo. Outerbridge	.....	Bermuda, W. I.	"	"
A. A. Holcombe	.....	New York City, N. Y.	"	1876.
J. S. Saunders	.....	Boston, Mass.	"	"
C. W. Crowley	.....	Springfield, Ill.	"	"
J. C. Corlies	.....	Newark, N. J.	"	"
W. J. Coates	.....	New York City, N. Y.	"	1877.
C. H. Peabody	.....	Providence, R. I.	"	"
C. H. Hall	.....	New Bedford, Mass.	"	"
G. I. Penniman	.....	Worcester, Mass.	"	"

* Deceased.

VARIETIES AND NEWS.

CATTLE PLAGUE IN GERMANY.

Recent outbreaks of cattle plague at Beuthen, in Silesia, is reported, and exportation of cattle from that part of Germany is prohibited. All cattle brought to Berlin are ordered to be slaughtered on the spot. At Hamburg, and other ports, measures are also taken to prevent the exportation of diseased cattle.

AMERICAN VETERINARY REVIEW,

OCTOBER, 1877.

ORIGINAL ARTICLES.

ANATOMY OF REGIONS.

Translated from Peuch and Toussaint's, Précis de Chirurgie Vétérinaire.

BY A. LIAUTARD, M. D. V. S.

[Continued from Page 205.]

CHAPTER II.

LATERAL FACES OF THE HEAD.

The lateral faces of the head are bound forward by the anterior face, behind by the posterior border of the inferior maxillary, above by the superior border of the neck, and downwards they extend to the commissure of the lips.

They form the parotidean and temporal regions, that of the cheeks and of the temporo-maxillary articulation. All these regions are arranged by pairs, one on each side of the median line, and are asymmetrical.

Upon the limit of the anterior and lateral face we find two apparatuses of senses: the *auricular* or *auditive*, and the *ocular*; we will consider them after the description of the lateral faces.

SECTION I.—PAROTIDEAN REGION.

Intermediate to the head and neck, its extent is susceptible of many variations, as the position of the head changes, either being flexed or extended upon the neck; its base is represented by the parotid gland. The complexity of the parts which compose it, their importance, and the frequency of lesions and abnormal growths in that region, as well as the presence of the guttural pouches which sometimes have to be open, render the parotid region one of the most important of the economy.

It is rectangular, elongated from above below ; limited above by the ear, below by the glosso-facial vein, forward by the posterior border of the maxillary, behind by the transverse process of the atlas and a vertical line extending from that process.

As external form, we find at the base of the ear and in front a small depression, bound posteriorly by a small prominence. The middle part is flat and slightly depressed between the posterior border of the maxillary and the transverse process of the atlas. Its inferior part seems to pass under the thick border of the maxillary, and runs towards that of the opposite side as far as the inferior border of the neck and of the throat.

The different layers which compose it are : 1st, the skin ; 2d, a subcutaneous connective layer ; 3d, a muscular layer ; 4th, the parotid gland ; 5th, several muscles ; 6th, the guttural pouches ; 7th, blood vessels and nerves.

1st. The *skin* is thin, covered with short hairs, very loose, and shows plainly the hollows and projections of the organs placed underneath. It is only in low bred horses, or in young animals at the time when they are suffering or recovering from strangles, that this region is thick and not well defined.

2d. The subcutaneous connective tissue is not very abundant in well bred animals, but more so in low breed, when then it is sometimes infiltrated with fat.

3d. The *panniculus carnosus* muscle extends over the whole region, but it is then reduced in thickness to only a few fibres spread over the parts and united together by a thin aponeurosis. Its greatest thickness is at the posterior and inferior regions, on a level with the union of the external maxillary and jugular veins.

Not to needlessly complicate our description, we will include in this chapter the parotido-auricular muscle. This muscle, of red strong color, runs in the direction of the great axis of the region, in the median part of which it is situated ; it spreads downwards as far as its lower quarter, and superiorly its fibres form a thicker fasciculus much narrower as it goes to insert itself to the base of the concha.

4th. The *parotid* is flat on its external surface, but the internal is very irregular to mould itself upon the muscles and blood vessels underneath.

The superior border is concave, and embraces the base of the concha ; the inferior is lodged in the angle formed by the glosso-facial and jugular vein ; its anterior border is moulded upon the posterior border of the maxillary bone. Below the condyle of that bone, the gland covers the bone in an extend of two or three centimeters, where the facial and temporal nerves, and the temporal artery and veins make

their exit. The posterior border is limited behind by the transverse process of the atlas.

5th. The different organs forming the layer underneath the parotid are irregularly arranged. First, forward and above are found blood vessels and nerves, which we will speak of as we go further on. Immediately under the ear, and backwards, on a level with the middle of the transverse process of the atlas, the small oblique muscle,* covered by the tendon of the mastoido humeralis.† The inferior border of the small oblique runs obliquely upwards, to be inserted upon the mastoid process; it projects somewhat over the stylo-hyoideus or occipito-hyoideus muscle.

The direction of the fibres of the stylo hyoideus is perpendicular to that of the fibres of the small oblique, and it is easily felt by the finger running in front of the fibres of this short muscle; as above, one feels the styloid process of the occipital, while downwards, and a little forward, at a distance of about $2\frac{1}{2}$ to 3 centimeters, upon an eminence of median size, is met the posterior border of the grand branch of the hyoid bone. It is in the space thus included between these two bones, in the very fibres of the occipito styloideus, that the puncture, to penetrate into the guttural pouches, must be made, which indeed lines the internal face of the muscle.

Altogether behind the stylo hyoideus, without well defined demarkation, one finds the superior part of the digastricus muscle, or stylo maxillaris, whose consistency is more marked than the other. This muscle runs soon forward and downwards, crossing obliquely the great axis of the region, and it reaches the anterior border of the gland, from under which it exits entirely at the antero-inferior angle.

Let us mention, also, in this layer, the superior border of the maxillary gland found at the posterior part, and towards the inferior third of the region. This gland is situated on a level somewhat deeper than the superior belly of the digastricus. It is separated from the deep face of the parotid by a thin aponeurosis, which is continued upwards with the tendon of the mastoido humeralis, and downwards with that of the sterno maxillaris, which passes over the surface of the digastricus, between it and the gland.

6th. The deepest organ of that region is the guttural pouch, kind of bladder placed upon the track of the Eustachian tubes, communicating on one side with the pharynx, and on the other with the middle ear.

The guttural pouch extends, specially in the supero-anterior part of

* *Obliquus capitis posticus minor* of Percival.

† *Levator humeri* of P.

the region, under the digastricus muscle and stylo hyoideus. In the lower region, on a corresponding plan of that pouch, we find the thyroid gland, the larynx and a part of the pharynx.

7th. *Blood Vessels and Nerves*, being numerous and important, they need a minutious description.

The *arteries* are the divisions of the *primitive carotid*, whose most elevated portion is concealed deeply under the posterior and inferior angles of the gland. These divisions are: 1st, the occipital; 2d, the internal carotid; 3d, the external carotid.

The *occipital* is not, in our point of view, very important; in its inferior third it is running along the internal carotid, then passes upwards under the transverse process of the atlas, and behind the guttural pouches, between the anterior straight muscles* of the head and the maxillary gland. One of its divisions, the mastoid, glides over the external surface of the styloid process of the occipital, under the small oblique muscle† of the head, and ramifies in that muscle.

The *internal carotid* is situated in a special fold of the posterior face of the guttural pouch, passing first directly upwards under the base of the cranium, then turning forward to reach the posterior foramen lacerum. It is in that last portion that it may be injured during the operation of hyo vertebrotoomy; when the bistouri is carried in too deeply and too perpendicularly.

The *external carotid*, first situated under and behind the guttural pouch, at the internal face of the parotid, runs obliquely upwards in crossing the region, and becoming more and more superficial, covered by the jugular vein and its confluent, as far as the posterior border of the maxillary bone, where it divides into two terminal trunks, the *superficial temporal* and the *internal maxillary*. In this course, this artery gives a number of branches to the parotid, and two principal ones. 1st, the maxillo-muscular, which, rising from the carotid at obtuse angles, a little forward of its terminal division, runs downwards along the posterior border of the maxillary bone, and divides in two branches, one external going to the masseter muscle, one internal going to the internal pterygoid muscle. 2d, the posterior auricular, which passes to the base of the ear, lodged in the tissue of the parotid, which receives many of its branches; it loses itself in the external and middle ear.

The divisions of the external carotid, the *temporal trunk* and the *internal maxillary*, belong also by their origin to the parotid region; the last, however, soon assumes a very deep situation. The superficial

* Rectus capitis anticus, major and minor. Percival.

† Obliquus capitis minor. Percival.

temporal, the smallest of the two, runs a short course between the parotid, the guttural pouch and the neck of the condyle of the maxillary, then it divides in two branches, the sub-zygomatic, which goes to the masseter, and the anterior auricular, passing upwards through the parotid to ramify in that gland, the crotaphite muscle and the concha.

The *veins* are numerous, and empty into the jugular or its affluents. The two roots of the jugular (temporal trunk and internal maxillary vein) unite together behind the neck of the maxillary to form this large vessel.

The position of these veins is entirely analogous to that of the arteries of the same name, though more superficial. The same can be said of the parotid portion of the jugular, which corresponds to the external carotid, and which receives the veins corresponding to the arteries given by this last vessel; the maxillo-muscular vein, the posterior auricular, and the parotid veins. All these vessels have a size double or triple of their arterial satellites. The jugular receives besides, towards its superior third, a second posterior auricular vein, which has no analogous amongst the arteries, and which follow a very superficial course, being lodged in a semi canal of the tissue of the gland.

The jugular vein, in its parotid portion, is sometimes so superficial that it is separated from the skin only by the panniculus carnosus and the parotido-auricularis muscle*; at other times it is covered by a thin layer of glandular tissue, and is detected only here and there through the region. In all cases, it is always easy to expose it, by pressure of the jugular in its groove; the oscillating movements that one can then give to the flow of blood will be transmitted readily as far as the base of the ear, and thus they allow not only to trace the size of the vein, but also its superficial or deep situation.

We may mention also amongst the veins of that region, the occipital vein, analogous to the artery of the same name. The glosso-facial vein, as we have already said, limits the inferior extremity of the gland which is received in the angle that it forms in joining the jugular.

The *nerves* are superficial or deep. Some are special to the region, others only run through it to reach other organs.

Directly under the skin are found the divisions of the first and second cervical pairs, going to the panniculus carnosus, the parotid and the ear. One of these branches coming from the second cervical pair passes, in going to the ear, over the surface of the tendon of the levator humeri; it is sufficiently large to give rise to violent pain when it is injured; another runs downwards, and crosses the direction of the gland to lay itself against the glosso-facial vein; it sends a branch to the cervical

* *Abducens* or *deprimens aurem*. Percival.

nerve, which comes out under the parotido-auricular muscle to lodge itself in the jugular groove.

The facial nerve runs through the parotid at its superior extremity ; it comes out of the fallopian aqueduct, gives immediately the posterior and middle auricular nerve, both going towards the concha, the first behind and the other in front ; the nerve of the stylo hyoideus and of the digastricus, which runs downwards and forwards ; upon the middle of the region, the anterior auricular nerve, which, concealed in the thickness of the gland, runs upwards behind the temporo maxillary articulation. In front of this last division rises the cervical nerve, whose course at the inferior and cervical part of the gland has already been mentioned. Then the facial nerve arrived upon the posterior border of the maxillary bone, where it meets the temporal branch furnished by the inferior maxillary nerve, it unites to it, and forms the sub-zygomatic plexus, which spreads itself over the surface of the cheek. All these nerves send branches to the parotid and guttural pouch.

The deep nerves found in that region are, the pneumogastic, spinal, superior ganglion of the sympathetic, which rest on the posterior wall of the guttural pouch with the internal carotid, the great hypoglossus and glosso-pharyngeal nerves, which soon assume a course upon the external face of the pouch under the great branch of the hyoid bone and stylo-hyoideus muscle.

DIFFERENCES.—In the *large ruminants*, the parotid region is not so well defined as it is in the horse ; from the form and the spinal situation of the parotid it does not include all the portion which corresponds to the gland itself ; indeed, we see the parotid extending forward in a peculiar manner over the cheek ; the skin thicker and looser than in the horse, forms often longitudinal folds. The parotid is of a darker color, is narrower, and its superior lobe extends forward over the surface of the masseter. The guttural pouch is missing in all animals other than the solipeds.

The parotid of the *sheep* and *goat* is somewhat like that of the large ruminants. The duct of Stenon rises about the middle of the anterior border.

In the *pig*, the parotid spreads considerably posteriorly—its form is rounded. In the carnivorous this region is very small, and the gland parotid, which forms its base, is also very diminutive.

All these animals are provided with two jugular veins—the external analogous, in general distribution, to that of the horse ; the occipital vein empties in the internal jugular.

[TO BE CONTINUED.]

BONE-SPAVIN.

A FEW PRACTICAL REMARKS ON THIS VERY COMMON DISEASE.

BY D. McEACHRAN, F.R.C.V.S., PRINCIPAL OF MONTREAL VETERINARY
COLLEGE.

From time immemorial the different forms and degrees of exostosis resulting in ankylosis of one or more of the articulations forming the hock-joint have been constantly occurring; hence this disease has long been a subject of study for the members of the Veterinary profession and others interested in horses. Some apology, therefore, seems necessary for bringing the subject before the readers of the REVIEW. My object in doing so is to correct a popular error, which exists almost universally, with regard to the *seat* of spavin and the parts involved, and, consequently, of the treatment adopted in the efforts directed toward effecting a cure of the disease.

Turn to what author we may, we find them all agreeing with the definition of a spavin given by Professor Williams in his standard work on "The Principles and Practice of Veterinary Surgery," who says, "A bone-spavin may be defined to be an exostosis on the inner and lower part of the hock, arising from inflammation of the cuneiform and metatarsal bones terminating generally in ankylosis of one or more of the gliding joints of the hock." Also, "Bone-spavin is but very rarely formed on the outer side of the hock."

In the present paper it is not my intention to enter into the pathological anatomy, causes or symptoms of the diseased condition known by the term spavin. I refer the reader to the excellent work above quoted for information on these subjects. I wish merely to point out a few practical facts regarding the location of the disease and the treatment it suggests.

Like all others for several years after commencing practice, I accepted the popular idea of a bone-spavin being confined to the antero-internal part of the hock-joint, and, consequently, in recommending or applying treatment was satisfied to counter-irritate that part only, either by a seton, the firing-iron, or blister, with, in almost every case, disappointment as to the result. Frequent dissection of diseased hocks soon convinced me that in very few cases, indeed, is the inflammation confined to the antero-internal part of the hock, but extends till not only "one or more," but nearly if not all these articulations are involved in the ossification.

If we take for illustration of the above remarks, fifty-four dried specimens of bone-spavin which I have collected in the museum of this College, we will find the following instructive facts :

Seven specimens in which all the articulations are involved in ankylosis except that between the tibia and astragalus.

One in which all the small bones except the os calcis are involved.

Twenty-eight in which the cuneiforms are united to one another and to the metatarsus.

Fourteen in which the ossification is confined to the articulations between the os calcis and astragalus.

Three (properly called splint) in which the ossification is merely between the internal splint-bone and the cannon.

One where the exostosis is confined to the antero-internal part of the cannon-bone, not involving the splint or cuneiform bones.

Out of the twenty-eight specimens in which ankylosis of the cuneiform bones has taken place, *we only find seven in which the cuboid is not involved in the ossification.* True, the ossification is interosseous, and would not be perceptible on the outside of the hock, even to an acute observer, during life ; but that fact does not in any way justify the popular error that "*bone-spavin is but very rarely formed on the outside of the hock.*" In the same specimens we find also two of antero-internal spavin in which the ankylosis is so smooth and bulges so little, that it would be impossible to detect any enlargement during life, yet we find the ankylosis complete, and involving the metatarsus with the three cuneiform and cuboid bones.

If we take these fifty-four specimens as a fair representation of this disease, it will thus be seen that while the inflammation would appear to originate and occur most frequently at the antero-internal part of the hock, it seldom confines itself to that location, but in three fourths of the cases the disease has extended to *the outside of the metatarsus as well.*

Next in importance from the frequency of the occurrence of inflammation leading to ossification, we find the articulations between the os calcis and astragalus furnishing fourteen out of fifty-four (more than one fourth,) exclusive of cases of complete ankylosis of the hock. In examining these specimens we find that, with one or two exceptions, there is no external enlargement which could be diagnosed during life with any degree of certainty, yet we find from the completeness of the ankylosis the inflammatory process must have been active while it lasted. That this is a very common seat of hock lameness a long

experience and frequent dissections have fully demonstrated. Every practitioner, especially in cities, has frequently found a difficulty in satisfactorily locating the seat of lameness behind. Judging by the action of the hock, they have felt convinced that it was the seat of the disease, but the most careful examination of that joint, in the usual seat of spavin, fails to discover any enlargement, and very often they have come to the erroneous conclusion that the hip or stifle must be the seat of the cause of lameness, whereas, the articulations between the os calcis and astragalus in most of the occult hock lamenesses will be found in a diseased condition.

In this form of spavin the lameness does not disappear by exercise to the same extent as in ordinary spavin; in fact, it is often increased by exercise, especially if on uneven ground. In these cases a very good test is to flex the hock, and by grasping the os calcis and moving it on its articulations, it will cause pain and increase the lameness.

A consideration of the position and uses of these two bones, and their connection to one another will readily indicate their liability to injury from over-exertion, slipping, and the usual causes of arthritis. The astragalus being subject to pressure from the tibia acting on its pulley-like surface in a direction from above downward and backward, and as remarked by Professor Williams, the peculiar screw-like motion of the joint is subject to three deviations: "First, the direction is from within outward for a short distance, then it seems to run perpendicularly, and finally the lines of the prominence are seen to curve toward the inner side, and on to the inner third of the cuneiform magnum."

This gives rise to action more or less twisting. The astragalus resting upon the cuneiform as its pedestal, is supported behind by the os calcis which clasps it as it were, resting upon it, and being supported by it.

While the astragalus has to sustain sometimes enormous weight and compression, the os calcis is subjected to corresponding tractile force, applied by means of the powerful tendons which are attached to or play over its surface. Although we find it strongly bound in its position by powerful ligaments, we need not be surprised if we find that the articulations between these two bones, being exposed to such antagonistic and often violent forces, frequently sustain such injury as to cause them to become inflamed, and be followed by all the concurrent phenomena of that accident.

A knowledge of the above facts led me many years ago to adopt the plan of applying counter-irritation, not to the antero-internal part

of the hock only, but round the whole articulation, without including the true hock-joint. In young animals three or four months' confinement in a loose box, with frequent applications of an active blister as above; in older ones the firing-iron, followed by blistering—the feet being kept level—have proved successful in a large proportion of cases treated at the College.

The treatment of spavin in old animals, for obvious reasons, should seldom be recommended or undertaken; but even in them by firing and blistering *round the entire articulation*, benefit will often be derived, provided sufficient rest is allowed, and the other conditions necessary are attended to.

RINDERPEST.

ITS PROPAGATION.—No. 2.



[From the National Live Stock Journal, Chicago, Ill.]

(Continued from Page 165.)

In our first article, attention has been drawn mainly to the dangers of the diffusion of rinderpest through the movement of live animals. In the present, the propagation of the disease by the products of infected animals will especially demand consideration. It may be stated broadly that all fresh products of the diseased are infecting, and that contact with, and proximity to them, are equivalent to contact with and proximity to the sick animal itself. But to obtain a clearer view of the subject we must take up successively the different methods by which these products are capable of infecting.

CARCASSES.

In all veterinary sanitary codes the dangers clustering around the carcass of the infected animal are fully recognized, and the law enacts that in all but very exceptional cases, *the skin shall be deeply gashed by crucial incisions so as to render it valueless, that the body shall be buried in a secluded place to a depth of not less than six feet, and that a thick layer of quicklime shall be laid over it before the grave is filled.* In the case of sick or dead cattle on shipboard, an easy method of disposing of them is sometimes sought by throwing them overboard before reaching port. Such carcasses floating ashore are quite as dangerous as the sick animals

themselves. During the last outbreak in Great Britain (in 1866) the disease was spread on the shores of the Frith of Forth by carcasses thus committed to the waves. A similar instance of the propagation of the disease through the infected bodies thrown into fresh water is mentioned by Buniva; the carcasses were thrown into the *Canal del Rotto*, and, carried on by the current, they infected the stock all along its course. Many facts go to show that the poison is not readily destroyed in water. Bruckmuller records how soldiers washed the infected meat furnished as their rations in a tributary of the Leitha, and that a cow and calf taken to drink from the river below showed symptoms of the disease in eight days, and had to be slaughtered, together with the rest of the horned cattle. He adduces other similar cases, as do also Oppeln and Gerlach.

Separated as we are by the broad Atlantic from all present seats of infection, this may seem to be a subject of small moment to us. Yet it should at least enforce the precaution, that when a ship from an infected country arrives at an American port with one ruminant short of the cargo she started with, not only should the others be carefully examined and quarantined, but the authorities along the shores where there is any danger of such carcass being stranded should be notified to bury it promptly, and disinfect the place where it has lain.

INFECTED MEAT.

The infected flesh, when carried around and sold for human food, has often propagated the disease. Instances of this kind are given by Buniva, Bojanus, Ribes, Hofacker, Renner, Maresch, Bunne, Bruckmüller, Gerlach, Fleming, Bouley, Reynal, &c. As we do not import fresh meat, and have no temptation to allow the flesh of animals arriving infected to be used for human food, this may seem of small moment to us. Yet, there is the remote possibility of ships reaching our shores that have been infected by carrying such meat between different countries in Europe. As an example of how such infection will operate, I need only quote the case of the two gazelles that carried the disease to the *Jardin d'Acclimatation*, Paris, in 1866. These were carried to the steamer in London in a covered wagon that had been used for transporting beef, and to those who investigated the matter, this seemed the only cognizable source of infection. This question of infected ships will be referred to elsewhere.

Closely connected with this subject of infected meat and carcasses, is the influence of dogs, cats, and other carnivorous animals and birds in spreading the malady. Such meat being considered less valuable than

other kinds, is left more accessible to these rapacious animals, and is often carried off by them to be devoured at leisure in the very buildings, yards or parks where cattle and sheep are kept. This should be a strong argument, not only against the use of such meat for human consumption, were any such wanted, but above all in favor of the most careful seclusion and guardianship of the carcasses, and for their early and thorough burial.

FRESH HIDES INFECTING—DRIED HIDES NON-INFECTING.

The question of the possibility of infection by imported hides is one of great and immediate interest to us, inasmuch as our tanners draw largely on the foreign market for their supplies. And here we must compliment the government for pursuing a perfectly safe course in entirely prohibiting the importation of hides from the various infected countries. The order, as we shall see, is unduly stringent, but it is unquestionably better to have inflicted a temporary injury on the leather trade than to have run the risk of a wholesale infection of our flocks and herds.

Of the virulence of fresh hides there can be no more question than of fresh carcasses or of flesh. The blood of the animal is virulent, and as this is contained in all of these products alike, all are infecting when newly removed from the carcass. Again, in rinderpest the skin is usually the seat of a specific eruption in which the poison is to a large extent concentrated. This is universally acknowledged, and it is needless to adduce illustrative instances.

But in the case of hides, much more than carcasses or flesh, there comes up the question of the early destruction of the poison when exposed in thin layers to the action of the air. In addition to the remarks already offered as to the destruction of the virus by exposure, I may here adduce one or two more from Dr. Rawitsch, who was appointed by the Russian government to conduct inoculation experiments.

On the 20th of June, 1863, Professor Jessen and myself obtained, at Sars Koge-Selo, virus from animals that were very sick; on the 4th of July we arrived at Orenburg and inoculated a number of cattle with this virus, without producing any result. The same cattle were at a later period inoculated with fresh virus and contracted rinderpest. Many such cases occurred. Once we obtained some virus in a village, and inoculated with it a few hours later without producing any result.

To return to the hides. The older observers are not in perfect harmony on this subject. Weith, Lorinzer and Spinola found infection to persist in hides no longer than the eighth day, and Camper until the sixth only. Layard states that rinderpest was imported into England in 1745, in a parcel of distempered hides purchased in Zealand, where

their sale had been interdicted. But considerable doubt is thrown upon this story by the still more circumstantial account of Mr. Theobalds, that it was "brought over from Holland, in April, 1745, by means of the white calves which a farmer at Poplar, near London, sent for in order to mix the breed." On the other hand, Courtrivon and Vicq d'Azyr claim to have covered cows with hides taken from sick animals on the day of their death without conveying the disease. If we can place confidence in this and in the other statement of Vicq d'Azyr, that he had inoculated rinderpest successfully with pieces of skin from a carcass that had been interred three months, it places in a strong light the destructibility of the poison in the free air, and its vitality when air is excluded. But, happily, we are not left to base our decision on any such uncertain results. To the Russian Veterinarians we are indebted for the definite decision of this question as of so many others bearing on rinderpest.

Dr. Rawitsch says :

Many experiments were made with dried skins and with hides that had been hung up in the open air and exposed during twenty-four hours. *These skins never produced a case of rinderpest. On the same cattle were afterwards placed fresh hides, or they were inoculated with fresh virus, and they died.* I appeal to Professor Jessen, who will confirm my statement. I believe, if we have exact information, that during twelve years not a single case of infection has occurred by means of dried skins.

In the same connection, Dr. Jessen remarks :

I beg leave to say a few words with regard to the disinfection of skins. . . . I must state that every hide that has been dried at a heat of 40° to 50° Reaumur (122° to 144.5° Fahr.) is incapable of producing infection. . . . Professor Branell has made many attempts at inoculation with dried skins and dried hair ; *but whenever they were inoculated after forty-eight hours, in no case was infection the result.* No practical Veterinarian will at present doubt that by means of dry hair as well as dry hides, anthrax may be propagated. I ask them can *one* instance be adduced in which, by means of dry skins, or their export beyond the Russian or any other frontier, the rinderpest has spread. If not one instance can be enumerated, then dried skins ought under all circumstances to be imported free.—(International Veterinary Congress at Vienna.)

It need only be added that this Congress, composed of the most eminent Veterinarians in Europe, sent by their respective governments to discuss the various subjects pertaining to veterinary sanitary police, unanimously agreed to recommend *hard dried hides* as an article of commerce on which no restriction should be placed, when the question was one of the propagation of rinderpest.

It would be easy to amplify such evidence, and to give the details of particular experiments, but I have preferred to give the evidence in the concrete, and to supplement it with the well-considered conclusion

of the combined Veterinary skill of Europe, rather than to extend unnecessarily the limits of this article. I will only add that the same series of experiments established the fact that hides which had been steeped in alkaline solutions (lye), in milk of lime or in boiling water, proved absolutely non-infecting.

If dried hides can be freely admitted into commerce in Europe, and if two days' exposure is destructive to the poison at ordinary temperatures, how much more safely may they be admitted if they have been first dried to prepare them for shipping, and then stowed away for nine or ten days more in crossing the Atlantic. There are only two possible conditions in which imported hides may preserve the virus of rinderpest: 1st, if they are frozen so that their organic constituents may be locked up without change until again thawed out; and 2d, when taken from animals that have died on shipboard during the passage. But hides shipped in a frozen condition would be thawed out in crossing the Gulf Stream, and would arrive soft and wet, so that they would be condemned as failing to meet the requirements, dry and hard; and hides taken from animals dying during the voyage would be equally disqualified, from the fact that the ship failed to present a clean bill of health for the trip.

On the whole, then, the interests of the leather trade may be safely consulted so far as to allow the importation of hides that are perfectly *dried and hard*, while all *fresh, soft or wet hides* should still be excluded.

DRIED HORNS, HOOFS AND BONES.

Like all other fresh products of the animal, these are infecting when newly removed from the sick, but in the *dried* condition they are equally harmless with dried hides, and are, therefore, legitimate objects of international commerce.

FAT.

This, as found in commerce, having been melted and poured into casks or bladders, is harmless, by reason of the high temperature to which it has been subjected, and may, therefore, be left out of account. If, however, unmelted fat were an article of import with us as it is in various countries of Europe, it would prove equally dangerous with fresh meat, and ought, therefore, to be absolutely interdicted.

WOOL, HAIR, BRISTLES.

Wool, like hides, interests us directly, as we fail to produce enough for our own consumption, and import largely from abroad. Theoreti-

cally, wool is a suitable medium for the importation of rinderpest, sheep as well as cattle being subject to the disease. Yet a careful study of the history of the malady fails to furnish illustrative instances of infection by this channel. There can be no doubt that the virus may be imprisoned in the meshes of the firmly-rolled fleece, and conveyed to a certain distance unchanged, precisely as it has often been in the clothes of human beings. But as the virus impregnating the clothes is destroyed by a few hours' exposure, (see in No. 1, case of attendant on sick and healthy animals at the Albert Veterinary College), so it probably is in the loose texture of the fleece. Yet if wool be packed at once after having been shorn, there can be no doubt that the virus might be excluded from the air as completely as in fodder, and thus be conveyed to any distance. It is, therefore, a wise provision of most of the European veterinary sanitary codes that forbids the importation of unwashed wool from infected countries, and a similar enactment would be equally appropriate for us. Washed wool has undergone such a process of purification and airing that it may be held clear of suspicion, and admitted without any restriction. On this point, again, our Treasury order illustrates the absurdity of our system, as not a word is said about wool in any shape. Hair and bristles are to be treated exactly like wool; when quite new they may be virulent, but when quite dry they have always proved harmless.

EXCREMENT.

All who have investigated the subject of rinderpest have been struck with the important place held by excrement in its propagation. As the disease concentrates its morbid action on the stomach and bowels, their products are especially charged with the poison; and if brought in contact with other animals in their fresh condition, or after having been closely packed in a mass, they will communicate the disease with the greatest certainty. Hence the history of the malady is full of instances of infection from recently manured fields, from those on which the manure has been spread but frozen for weeks and months, from grazing on fields formerly occupied by diseased animals, and from occupying buildings, yards, loading banks, wagons, cars, ships and boats in which the sick have been. The manure is usually deposited in masses, thick enough to prevent the ready destruction of the virus by the action of the air, and hence its virulence is only extinguished by the slow process of putrefaction. Whatever, therefore, retards this process, will prolong this danger; and thus the frosts of winter, and the firm packing of the

manure, will each favor the retention of the contagion. Practically, this imports little to us, as on shipboard manure is disposed of daily in the easiest manner, by turning it into the ocean; yet it should render imperative a very thorough cleansing and disinfection of ships in which any diseased animals may have arrived.

FODDER.

Fodder is of more practical importance, as being liable to be landed in variable quantity, along with stock brought to the country, and as capable of retaining and transmitting the poison, though the animals with which it was imported may not be susceptible to its influence. Thus, horses and swine, though themselves incapable of taking the disease, and cattle and sheep that are not susceptible to it, by reason of a special idiosyncrasy, or a former attack, may become the occasion of landing one or more bales of hay or straw which has been infected in the country of export, and has preserved the poison by reason of the closeness of the packing and the exclusion of air.

Many examples of infection by hay are recorded. Buniva, Hurtrel d'Arboval, Huzard, Grogner, Reynal, etc., adduce instances of its conveyance by the left hay of the commissary herds of the armies in the field—such herds being almost always infected in Europe. Vicq d'Azyr rubbed down a sick animal with wisps of hay, and then fed them to a healthy one, thereby conveying rinderpest; a second animal, which ate a portion of this hay, after it had been washed and cleaned, escaped. Haubner records an instance in which hay communicated rinderpest four months after it had been taken from an infected barn. In 1770, the disease was imported into Banff, Scotland, in hay imported from Holland, where the malady then prevailed. It should, therefore, be made imperative that no hay nor straw coming from an infected country should be landed, but rather burnt in the furnaces of the vessel, or on the quays.

BLANKETS, BUCKETS, BRUSHES AND OTHER STABLE UTENSILS.

There is comparatively little danger of these harboring the poison in cases in which imported stock have shown a perfect immunity from disease. But in cases in which their record is not altogether clear, or where blankets have been closely packed in chests or trunks, and thus shut out from the disinfecting action of the air, they ought to be subjected to a purification before landing. Blankets may be boiled, hung up, unfolded over thick fumes of burning sulphur, or heated up to a

temperature of 200° Fahr., for half an hour, in an oven. Brushes, buckets, forks, and other utensils, may be thoroughly washed with soap suds, or all, excepting the brushes, may be sponged with a strong solution of caustic soda; or the carbolic acid, or chloride of lime solution, used for the surface of the animals, may be freely applied to these also.

SHIPS.

These, like all other means of conveyance, should be thoroughly disinfected, where there is the ground of suspicion that they have carried animals suffering from rinderpest. In Europe, in time past, railroad cars and ships have been among the most prolific sources of this affection. Cattle from healthy localities, transported in uncleaned wagons, were seized with the disease a day or two after reaching their destination; and this was so constantly repeated that a general system of disinfection has been adopted for all articles used in cattle traffic. With vessels engaged in the transatlantic trade, no such universal system is necessary. Infected ships, carrying cattle, would contaminate them so that the disease would be developed in mid-ocean, and would be only too evident on their arrival. The disinfection of ships, therefore, may be safely confined to such as have lost animals, presumably from disease in transit, and to such as arrive with sick animals on board. Ships that have been employed, at no distant date, in carrying animals, fresh meat, hides, unmelted fat, or other fresh animal products, or hay or straw from an infected country, would be in equal need of disinfection, before they were again used for the conveyance of ruminants; but unless they were to be employed for our internal trade, their disinfection would not come under our present subject—the preservation of home stock.*

* In the last article on this subject, when mentioning the importation of the lung plague by means of a Short-horn cow, Austria should have been printed Australia.

TWO CASES OF URETHRAL CALCULUS.—URETHROTOMY.

BY E. MINK, ROCHESTER, N. Y.

In April, 1875, I was called to attend a bay gelding about ten years of age, owned by a gentleman residing near Churchville, N. Y. I was informed by the owner that a practitioner, who had been attending the patient concluded his ailment to be inflammation of the kidneys. In any event they were sure there was some trouble about the water works.

I started to attend the patient with the expectation of finding some bowel difficulty. He had been observed for some days previous to pass water frequently and in small quantities. He had suffered great pain for about twenty-four hours. When I arrived at his stall I found him lying down, and he could be induced to rise only with the use of a whip.

In rising and standing he manifested symptoms of considerable exhaustion. His pulse and general appearance indicated that he could not have endured his sufferings for many more hours without sinking under them. An examination at the ischiatic notch showed the urethra much distended. I immediately passed a catheter. When it had reached the perineal region, it met with an obstruction which I was at once satisfied was urethral calculus. The patient was placed under restraint with a twitch and side line. The catheter was, by an assistant, firmly pressed against the obstruction. I then cut down upon and removed it. The catheter was then passed on into the bladder, and about twelve quarts of urine came away.

Relief was instantaneous. The only further treatment advised was proper diet, a daily cleaning of the wound, and dressing with a weak lotion of carbolic acid. The wound healed rapidly and kindly, and the patient resumed work within a few days.

The second case was in an ox—one of a pair weighing 1800 pounds—owned by P. J. Thomas, Esq., of Rose, Wayne Co., about fifty miles distant from this city. Was called to attend him on the 8th of February last. Was informed that he had been sick for about twenty days.

In the opinion of the wise doctors of the neighborhood, his malady was horn ail, or tail soak, or both; and, accordingly, his horns had been bored, stimulating liquids thrown into the cavities of them; his

tail split open with a knife, the wounds filled with salt, and then bound up with tarred rags.

I was told that they had not observed him to pass any water for several days. A glance at the suffering animal revealed to me an enormously distended abdomen.

The peculiar, hollow appearance in the superior portion of both iliac regions, with the abrupt lateral distension of the abdomen, indicated to me that I had a case of ascites to deal with.

Percussion and palpitation confirmed my diagnosis. I examined the urethra in the perineal region, and found that it was not distended with urine. This led me to remark that if he had urethral obstruction, the probability was that his bladder was ruptured.

The animal was led from his stall into a barnyard supplied with a good bed of dry straw. I then made an opening, with a lancet, in the skin, in the inferior abdominal region, about three inches from the linea alba. Through this opening I pushed a trocar. After withdrawing the stillette the fluid came through the canula with great force. The first impression on my olfactories was that it had a urinous smell.

The water was allowed to flow until about forty-five gallons had been drawn. The ox manifested symptoms of syncope; a bandage was gradually tightened around him, but he slowly sank to the ground. I then secured him for an operation, and administered a drench of milk and whiskey punch.

I commenced by cutting down just in front of the scrotum, to and through the sheath of the penis. I then seized the penis with a pair of clamps that were lined with vulcanized rubber on their opposing surfaces, and steadily pulled upon the penis until the retractor muscles were overcome, and the sigmoid flexures were straightened.

I then passed a fine whalebone staff into the urethra until it met with an obstruction in one of the sigmoid flexures. This I cut down upon and removed. It proved to be a genuine calculus about the size of an ordinary marrowfat pea, though irregularly spherical, which had completely filled and obstructed the passage.

The penis was then returned to its sheath, the incision in the skin sutured, and the ox allowed to rise, which he did quite well. The milk and whiskey punch was repeated, and an hour of rest and quiet allowed, when the trocar was again pushed into the abdominal cavity, and the fluid allowed to run until fifteen gallons more were removed, making sixty gallons in all.

I requested that an autopsy should be made in the event of his

death, which I was sure was not far off, to ascertain if the bladder was ruptured.

He died within a week. The *post mortem* revealed a ruptured bladder. There were many spectators present during my operations, and when I had got through and had entered the hotel of the place, to which I was followed by the crowd, I gave them a brief lecture on the folly of diagnosing nearly every obscure case of sickness in cattle as either horn ail or tail ail. The doctors who had attended the ox were present, took the lecture kindly, and admitted that the patient might have been saved by a timely removal of the calculus.

This case is an admonition to the owners of stock that *at least one* competent Veterinary Surgeon should occupy a radius of ten miles within every thickly settled agricultural district throughout our land, so that our poor brutes would no longer be subject to the useless and cruel barbarities that are practiced upon them by ignorant and conceited practitioners.

ROCHESTER, Sept. 13, 1877.

P. S.—I omitted to mention that the calculus removed from the horse was about the size of an ordinary hickory nut.—E. M.

OBSTRUCTION OF THE URÆTHRA.

On the 16th ult. I was called to see one of a pair of coach horses, the property of George W. Lyman, Esq. The coachman said that the animal had trouble in passing urine, and that there was a swelling on the end of the penis. On examination, I found the terminal end of the urethra projecting beyond the glans penis nearly an inch, and the canal obstructed; with the nail of the small finger I was able to feel a hard substance, which I presumed to be a calculus, firmly impacted; as the animal was of a nervous temperament, and irritable, I was satisfied that it could not be removed unless he was thrown down and secured; as it was nearly dark, the operation was postponed until the next day. On the 17th he was cast; after drawing out the penis, I attempted, with forceps, to remove the mass entire, but was not able to do it; I then introduced one blade of the forceps between the mucous membrane of the urethra and the calculus; then, with the thumb for the fulcrum, the handle of the forceps for a lever, a small piece was broken off, which

was removed by the forceps ; in the same manner the remainder was taken away ; the animal was let up, and in a few minutes passed the urine without difficulty. A part of calculus was lost, as it crumbled between the blades of the forceps ; the weight of the remainder was thirty-five grains.

Calculi in the urinary organs may not be rare in other localities, it certainly is in this, as this is the third case which has come under my observation in a practice extending over a period of more than thirty years.

E. F. THAYER.

EDITORIAL.

PROFESSOR GERLACH.—VETERINARY EDUCATION.

The Veterinary profession has just lost one of its best lights, one of the greatest reformers in the general Veterinary education, Professor Gerlach, the able Director of the Veterinary School of Berlin, Prussia, died on the 29th of August last.

Since the days of Renault, of Alfort, there never was a man whose whole life has been devoted to the improvement and advancement of both the Veterinary Profession and the education of those desirous to enter on its studies; and though but few of our readers knew of him, his world-wide reputation was such as a teacher, a writer and an investigator that all Veterinarians, even on this side of the Atlantic, will appreciate the loss Veterinary art has sustained in the death of such an eminent man.

Through the kindness of one of our correspondents, a student and more than a friend of his, we are able to present our readers with an obituary of Professor Gerlach, and we do it as the leading paper of a series of articles on Veterinary Education which was the subject of much attention on the part of the deceased director, and to which these articles we might consider as being dedicated to his memory.

The subject of Veterinary Education abroad and on this continent has occupied the minds of many engaged in the duties of teaching at the different schools. The first numbers of the REVIEW contain articles from the pen of Professor McEachran ; those which we have received from Mr. Billings, which we will publish at some future time, will, no doubt, be found interesting, and though there are in them many points which we fear would be of difficult, but not impossible realization, we must say that the good object they have in view will

be an excuse for what at first sight would appear to be too extravagant. It may be looked on by many as the suggestions of an enthusiastic mind, but we cannot help but consider them as excellent to prepare our people to the appreciation of the requirements for the qualifications of the Veterinarians of the future.

MEETING OF THE U. S. V. M. ASSOCIATION.

The 14th anniversary meeting of the United States Veterinary Medical Association was held a few days ago, and a concise report of the transactions are found in the contents of this number of the REVIEW.

Taking in consideration the fair attendance of the members present, and the good representation of the different States in the country which met together on that occasion, and the friendly feelings which prevailed through the meeting, and later in the day at the entertainment which followed, this 14th anniversary was as much a success as the one which was held last year in Philadelphia. But if, by thought we go back to that occasion, how much more interesting, and how more satisfactory, in a scientific point of view, it will prove to have been. Then the attendance was also quite large, but the meeting was specially brilliant by the number of original subjects, by the scientific papers which were read, and for the reading of which nearly two whole days were required. In this last meeting, on the contrary, we had nothing. Not a single report, not the shortest paper. Still members were there collected, some from a long distance from New York, and had to separate after listening to a series of common business which, generally speaking, could have been transacted in a few minutes, and that by an Executive Committee or the Comitia Minora.

Now it seems to us that such a state of affairs is to be much regretted, and that something more than general business of a large society like the United States Veterinary Medical Association ought to be carried on at a yearly or anniversary meeting. There is, besides the ordinary committees, three special ones formed in the Association from which sufficient material for reading purposes ought to be provided—the Committee on Diseases whose duties are to investigate, as well as in their power, the general condition of health of live stock all over the country, and the diseases, with causes, symptoms, pathological lesions, etc.; again we have a Committee on Education whose investigations in the improved state of Veterinary education, of recent works and publications, would give them material for excellent reports; and last, but

not least, there is a Committee on Prizes. Is it not a sad thing to find that in this last meeting the three chairmen of these different committees had no report to make. It shows, it appears to us, a lack of ambition on the part of the members which is to be regretted, and which if not overcome will in a short time prove a dangerous condition for the future welfare of the Association. A meeting cannot be made interesting and worthy of a long journey unless something besides general business is to reward the fatigues of members who come to New York from the far East or the remote West, from Boston or from Cincinnati; and unless the special efforts of the officers of the Association can wake up the spirit of labor amongst the members, we fear the United States Veterinary Medical Association will never see again a meeting like the one held in 1876, and that, though its members may increase, the good that it might do towards the interests of the profession will be of little use.

REGULAR GRADUATES.

According to our request made in the last number of the REVIEW, we have received from Professor A. Smith, of Toronto, a list of the graduates of the Toronto School, and extracted from it for publication the names of the gentlemen which are practicing in the United States.

From the pen of Professor Prentice, of the Illinois University, we have received a communication with an official list of the regular members of the profession members of the Royal College of Veterinary Surgeons. This list contains only those who have a full claim to the title M. R. C. V. S., and, of course, does not mention those gentlemen who, holding degrees from Edinburgh or Glasgow only, though regular graduates, are V. S. E. or V. S. G., and not M. R. C. V. S. E. or G. as many have the habit of calling themselves. There is but one Royal College of Veterinary Surgeons, and no one has the right to use its name unless he holds the diploma of that scientific body of Great Britain. We will try to obtain for our next, a complete list of the graduates of the other schools of that country, and present it to our readers.

FOURTEENTH ANNUAL MEETING OF THE UNITED VETERINARY MEDICAL ASSOCIATION.

The Fourteenth Annual Meeting of this Association took place in the lecture room of the American Veterinary College on Tuesday, September 18th, 1877. The Comitia Minora met at 11 A. M. and adjourned at 12 M., when the regular session of the Association was called to order with President Liautard in the chair. O. H. Flagg, New Bed-

ford, Mass.; J. H. Stickney, Boston, Mass.; E. F. Thayer, West Newton, Mass.; Robert J. Saunders, Salem, Mass.; John S. Saunders, Boston, Mass.; Theo. S. Very, Boston, Mass.; Chas. P. Lyman, Springfield, Mass.; Robert Laidlaw, Albany, N. Y.; C. B. Michener, Carversville, Pa.; John B. Cosgrove, Worcester, Mass.; E. Travers, Rhinebeck, N. Y.; J. C. Corlies, Newark, N. J.; H. H. Lawrence, Yonkers, N. Y.; L. V. Plageman, Brooklyn, N. Y.; Jas. L. Robertson, A. Lockhart, C. Burden, P. Nostrand, J. D. Hopkins, and A. A. Holcombe, of New York City, answered to roll call.

The minutes of the previous meeting were read and accepted. The committee appointed to petition Congress for a more stringent law relating to the importation of cattle reported progress. The Board of Censors reported favorably upon the applications for membership of John Myers, Cincinnati, Ohio; Chas. H. Hall, New Bedford, Mass.; C. H. Peabody, Providence, R. I.; Geo. P. Penniman, Worcester, Mass.; and W. J. Coates, New York City. Upon motion they were all elected members of the Association. Chas. P. Lyman, of Springfield, Mass., presented the application of J. A. Brackin, Pittsfield, Mass.; and J. C. Corlies, of Newark, N. J., presented application of Julius C. Force, of Newark, N. J., for membership. Upon motion the chair appointed A. Lockhart, J. D. Hopkins, and J. B. Cosgrove, a Committee on Nomination for Officers. The committee reported for President, Chas. P. Lyman, Springfield, Mass.; Vice-President, Williamson Bryden, Boston, Mass.; Recording Secretary, A. A. Holcombe, New York; Corresponding Secretary, Earnest Travers, Rhinebeck, N. Y.; Treasurer, C. Burden, N. Y.; Censors, J. H. Stickney, M. D., Boston, Mass.; J. L. Robertson, M. D. V. S., N. Y.; J. D. Hopkins, N. Y.; Alexander Lockhart, N. Y.; A. Liautard, M. D. V. S., N. Y.; A. A. Holcombe, N. Y. The nominees presented by the committee were elected by acclamation. Upon motion the President appointed A. Lockhart a committee of one to conduct the newly elected President to the chair. Retiring President Liautard addressed the Association, thanking them for the honor they had conferred upon him by electing him two years in succession as their presiding officer. He called their attention to the progress which Veterinary medicine and surgery had made during that time, and said he believed the birth of the AMERICAN VETERINARY REVIEW was the most important of them all. That it was born to the Association upon the year of the hundredth anniversary of the birth of the nation, and that although it was strong in its infancy, and is receiving favorable notice at the hands of English, French, and German Veterinarians to

make it a truly representative organ of American Veterinary literature that would carry to the world a just and comprehensible condition of the advancement of the science as it exists here to-day, requires the constant and unceasing efforts of all the members of this Association.

C. P. Lyman then thanked the Association for the unexpected honor which it had bestowed upon him in electing him as their presiding officer, and while he should do all in his power to advance the interests of Veterinary surgery, he could do little without the aid of the members of this Association, which he felt sure would be cordially given him. Communications from Benj. McInnes, of Charleston, South Carolina, and L. T. Bell, of Brooklyn, were received regretting their inability to be present at this meeting. The Secretary was instructed to have two hundred copies of the by-laws of the Association printed. The Committee on Finance reported that inasmuch as the funds of the Association were somewhat depleted, an assessment of five dollars per member be made to meet contingent expenses; such assessment to be paid before March, 1878. Carried.

Dr. Thayer, of West Newton, Mass., presented the first and second vertebræ of a horse which had died from a tumor upon the right side of the neck; the bones showing absorption of a considerable portion of their substance. Dr. Liautard presented the os pedis and nerves from a leg on which neurotomy had been performed. The os pedis was fractured transversely at the semilunar arch, while the nerves presented neuromatic tumors. In connection with this case he reported another case in which similar complication had taken place five days after the operation, in which, the animal being destroyed, the same lesions were found. A third case presented the same symptoms after being operated but a few days. As these three animals had been allowed much liberty almost immediately after the operation, Dr. Liautard inquired if that was not the predisposing cause of the appearance of the complications. Dr. Stickney stated that he did not think they were, as it has been his custom for years to allow neurotomized animals to be turned out to pasture immediately after the operation, and he never had occasion to meet with the same trouble. Dr. Robertson presented several calculi.

After considerable discussion upon the subject of navicularthrititis and the operation of neurotomy, the meeting adjourned to dinner at the Ashland House at 6 P.M.

A. A. HOLCOMBE, *Secretary.*

OBITUARY.



IN MEMORIUM

OF

ANDREAS CHRISTIAN GERLACH.

Late Director of the Royal Veterinary Institute, Berlin, Prussia.

Born in 1811, in Saarstadt, in the Horz Mountains. Died at Berlin, August 29, 1877, aged 66 years.

BY A STUDENT.

"And I hear the voice of coming generations, saying, 'Well done, good and faithful one, you were indeed our Standard Bearer of Truth.'"

It is not my purpose to write even a notice of the life of our late Director; for that task others of his countrymen are far better fitted, and it will undoubtedly be done. For me comes the more difficult task, to describe the friend, and still not overdo the work of judging the man. It is of Gerlach as director, as scientist, as man, I would say a few words, because I believe they may be of benefit to many a student now working his way upwards.

A few words of his life will, however, be a fitting introduction. Born in 1811, we find him graduating from the Berlin school in 1833 as a Veterinarian. He took up the profession from his intense love of animals, a passion which only ceased with his life, and which his dumb friends often returned to the best of their ability. From 1833 to 1844 he practiced privately in and around Hallustadt, in Saxony, being in the last year appointed as Official Veterinarian of that district. In 1847 we find him as assistant, and then as teacher, at the Berlin School. In 1859 he received the honorable appointment as Director of the Royal School at Hanover, and between this time and 1870 were made the greater part of his original researches, which have gained acceptance not only in veterinary but human medicine. Gerlach was the first to deny the abiogenesis of glanders, and the truth of his assertions are being daily more confirmed. To him is also owing the excitement and investigation into the infectious nature of the disease called tuberculosis, in cows; and to the obstinacy with which he defended his views is owing much of the opposition he received from many members of his profession. As the case now looks, Gerlach's position becomes each year more strongly

supported, and that of his opponents weaker. In 1870 he was called to the Directorship of the Royal School at Berlin, and here began his master work, or rather, he had a better opportunity to seek to develop the ideal of his life, viz. : the introduction of a scientific methodic into Veterinary education. In this work he had too much to overcome to be but partially successful, and consequently, the late Director of our school is not alone to be judged by his works, but also by the works which he would have done, viz. : by his ideality. Neither the Berlin school alone, nor the profession in Germany, are alone the losers by the death of this exclusive scientist. The Veterinary profession of the world has, in the writer's opinion, lost its *Standard Bearer* ; the leader of its *Forlorn Hope*. Bourgelat was indeed the one to lay the foundation of Veterinary education ; and Gerlach was no less the first to make a scientific study of the needs of Veterinary education—narrowing his entire energies to this one point—and the introduction of a scientific methodic into our teaching and practice. Our late Director was indeed the Luther in the school of Veterinary thought. In some respects he had the appearance of a very one-sided man ; but to those who knew him better, he was a man bending everything, sacrificing everything, for the success of an ideal object. That object was the elevation of Veterinary medicine to a science, fitted to take its place in the bright halo of the sister sciences of the world. For this he gave his life ; for this he mortgaged himself for years ; bearing with quiet dignity ill appreciation, and bitter opposition from the persons he was giving his life to serve. To others, there may have been but one Gerlach, and that the autocratic Director of the School ; the man who would neither hear nor bear a word of contradiction. To others, and among them the writer, there was another Gerlach ; the sincere friend, who greeted me with all the kindness of a father on my arrival in a foreign land, and whose watchfulness, deep interest, and encouraging words of advice, as well as caution, for the past two years, are only to be compared to the tender care of a mother. The autocrat has been, at the same time, the dearest friend of my life.

The entire character of the man might be written in one sentence : “ Be sure you are right, then go ahead, regardless of cost.” That he did this, every one will testify. He was a hard and exact student of his position and responsibilities ; knew exactly the worth and ability of each of his assistants ; and knew much better than any other leader in our profession—judging by their writings—the course which can alone succeed in the elevation of our profession. He was frequently accused of want of generosity towards the opinions of others. Persons who in

general make such accusations have very little knowledge of how the world has been made. Generosity towards the opinions of others is a virtue in the general relations of society; but under some circumstances, if continued or indulged in, becomes a weakness. Such a place is the one filled by our late Director.

In judging of Gerlach's character, the writer is not considering him in the narrow limits as Director of a school, but as the ideal man, the true Gerlach, the standard bearer of our profession. Another may with honor fill his place as Director, but this place of greater honor is the world property, and open to the world. Gerlach was, as said, looked upon as unjust, as ignoring the opinions of others. Those saying this, little understood the true nature of the man of whom they were speaking. Nothing ever came from Gerlach without mature reflection; nothing was ever done by him which was not intended for the elevation of our unfortunate practice into a science. Every man selected by him for any position as teacher in the school, was the best known to him. To say that he did not make mistakes, would be giving him a character above mortals. That he did not endeavor to do not only his duty, but his ideal duty, would be false. This apparently cold man was the most enthusiastic, yet practical, idealist, the writer has known. His course was only determined after the most careful consideration of all sides. He did consult, but with those to whom he was himself responsible; not with those it was his duty to direct. Everything was by him judged by his ideal-light; to this perfection he would attain; to this end all must be sacrificed. Great practitioner that he is said to have been, he knew full well that this much lauded practical education was, and is, the *curse*, the carcinoma, consuming our vitality to-day. He did not neglect the practical side, but he would force it where it belongs, where it must be sent before we can advance to a science, that is, as a worthy and necessary assistant to mankind. Science is not practice alone, but this much lauded practical education is of itself little better than educated quackery. Knowing this, knowing the right, strong in the self-consciousness of right and his own ability, Gerlach went onward entirely regardless of men. Many and many a time, in speaking with the writer over his life's work, would he say: "My friend, would we could consult more with those we would work with, but it cannot be; as you go on with your work you will find, this one would modify that, and another this part of your plan, and the end would be, nothing of value would be done." Study, think, weigh all things, and as said before, "be sure you are right, then go ahead." Was Gerlach alone in thus reading the art of human

progress? Emphatically no! The great luminary of human medicine, and the great leader of humanity in Germany, Virchow, as well as other men of the same kind, living and passed away, have all found this to be the sole pathway to success. So it will be to eternity; the great must walk alone. Gerlach was no exception to this rule, and so it will be with the one who would take his place as Leader of our Forlorn Hope. All are willing to concede to his great work in contributing to the better appreciation of the profession in his native land. And the day will surely come when the judgment the writer gives to-day will also be justified. Gerlach sacrificed all thought of himself; Veterinary science was his idol, and like the Hindoo enthusiast, who allows himself to be crushed by the wheels of his advancing God, so was Gerlach crushed, and so he sacrificed himself for our cause. Fellow students in Germany, let us make our late Director our study, educate yourselves broadly; but when our time comes, when we, too, must select the point upon which we will work for our professional advancement, we too, like him, must concentrate all our energies, and hold them well in hand for this one work; like him we must consider no sacrifice too great, no work too hard. We have before us a sacred duty, I as foreigner, you still more as his countrymen, all of us men, and Veterinarians, to see that the Tree of Science, which he planted, and which he gave his life to nourish, does not suffer for want of support. The best monument we can build to his memory is to do our part to the completion of his work, and our work too. Let us see which one of us can fill the place, its impossible for your country yet to fill. Boldly in the conflict lists of the world, your friend and colleague throws this gauntlet at your feet. Who will be the first to take up and unfurl our banner, and lead our advance to new scientific conquests? The question of education is the one demanding the most careful application of scientific methods. It was Gerlach's hope to have lived long enough to bring the entire system of the Berlin school into the hands of specialists. It was Gerlach, more than any one man, who believed in the centralization of Veterinary education for his country at one well appointed institution. A few months before his death, he laid before the writer his ideal plan for the future, telling him of the many hindrances in his way, the greatest of which was want of funds; even then he hoped against hope to bring it about. Unknown, I think, to his colleagues was the fact, that he nourished a secret dislike against the present plan of having our special pathology taught by one or two men. "Divide your work; no time to study, no time to study," he would again and again repeat, and warn me against falling into this

mistake in America. "No progress so," was frequently upon his lips in our many conversations. We may never cease to be grateful for his last work, the introduction of a specialist as a physiologist to our school, and the preparing of the same with a laboratory, instruments, vivisection building, and everything possible, so far as his means would allow. From the professor we have a right to expect much work of immense value, as soon as all comes in working condition. This was the beginning; the ending is the sacred work of other hands. In his seven years' service, the expenses of the school have become doubled, and the institution, from a very inferior position, taken the first rank in Europe. His printed works bear the character of the man; one and all, they can be termed "*Contributions to Science*," for they are as valuable to the human as Veterinary profession. Those having volume form are, "Krätze u Raude," (Scabies,) "Allgemeine Therapie," (General Therapy,) "Gerichtliche Thierheilkunde," (Veterinary Jurisprudence,) and "Du Fleishkost des Menschen," (The Flesh we Eat.) Search where you will among his writings, you find nothing but the exclusive scientist. The name of Gerlach can never be associated with the production of those curses to our profession, *popular works on the diseases of our domestic animals*. This apparently cold man was too deep and tender in his nature to contribute thus to the torturing of the animals he loved, by half educated quackery. His hatred of quackery was glorious—he would have made it imprisonment for life had he had the power. They were as brutes, torturing the truest friends he ever had, our dumb animals.

He leaves two sons, with their wives, to mourn his loss. How good a father he was, the writer well knows; what interest he took in the work of the student who would study, all can testify. Let us one and all take up the work still so uncompleted, and do equally well our part towards its completion.

Königliche Thierarznei Schule, Berlin, Aug. 29, 1877.

CORRESPONDENCE.

VETERINARY COLLEGE, TORONTO, }
CAN., August 15, 1877. }

EDITOR VETERINARY REVIEW :

SIR : In your August number I notice a short article headed "Veterinary Education," and asking me to explain how Mr. Stalker, of Iowa, became a graduate of the Ontario Veterinary College. I thought that Mr. Stalker in reply to the disinterested (?) effusions of the principal of a rival institution, had sufficiently explained his connection with both the American and Ontario Colleges. I agree with L. L. that Mr. S. is a gentleman and a scholar, and, further, I consider him thoroughly competent for and entitled to the position which he occupies.

Mr. S. not only attended a course at two colleges, but for years previous to entering college had given the subject of Veterinary medicine and its collateral branches considerable study.

Until this year I was under an impression that a student had only to attend two sessions at the American Veterinary College to qualify for graduation.

In our College it is necessary to attend two sessions, without a student has attended a course in a recognized Veterinary institution. Many of our students, however, attend three sessions before undergoing a final examination, and merit and ability form the only "*royal road to graduation.*"

We have frequently young men coming here who have been studying with qualified practitioners for two or three years. Such a class of students can in two years pass as good an examination, perhaps, as young men who have not given the subject any study previous to entering college can do in three years. As well as attending to two or three sessions, the most of our students pass the summer months under a qualified practitioner. I believe that a student after attending one or two sessions at college will reap a greater advantage by practicing a few months with a practitioner doing an ordinary practice, than by a six weeks' course at any college.

This year if we had had sixty junior students in place of thirty, they could have been all placed during the summer months with practitioners doing large and paying practices.

L. L. asks, "Is there a royal road to graduation in which either brains or money can pass?" All the money required is fifty dollars per session for two sessions, and only twenty-five if a student desires or requires to attend a third; but it is positively necessary that a candidate for graduation should possess the *other essential* in an eminent degree. For the further information of L. L. I may state the fact that if a gentleman possesses brains and a diploma from the Ontario Veterinary College he can very soon command both *position* and *money*.

Mr. Editor, I heartily endorse the liberal views with which you favor your readers in your editorial on the Veterinary profession in America. I believe far better results will arise from pursuing such a course as you so ably advocate, than by writing disparagingly of many highly respected practitioners who through force of circumstances have not had an opportunity of becoming members of the profession.

I am, sir, yours,

ANDREW SMITH,
Principal Toronto Veterinary College.

OTTAWA, ONT., Sept. 15, 1877.

TO THE EDITOR OF THE AMERICAN VETERINARY REVIEW :

DEAR SIR : I crave a small place in your valuable journal to set right a remark made by Mr. McEachran some few numbers back where, in his paper on Veterinary Education, he says that a former student of the Ontario Veterinary College who acted as an examiner at the spring examination of that institution, remarked to him that the examination made him (the examiner) blush for the low standard that he himself was graduated on. Reading this passage my memory carried me back to a conversation Mr. McE. and I held some short time previously, wherein I remarked that the examination was much severer than the one in which I graduated. The whole force of the remark went to show the improvement that had taken place in the institution, not but what I thought the examination that I passed in 1868 fully up to the standard. I immediately wrote to Mr. McEachran, mentioning the affair, and asking if in his paper he alluded to me, and shortly after received a reply, very kind and friendly in its tone, but without a single allusion to the point at issue. I then wrote him again but have received no reply, thence my reason for now putting the remark in its proper sense. It certainly is not pleasant to have one's remarks in a conversation twisted around to make a desired point. But perhaps Mr. McE. misunderstood my remarks, and perhaps he has mislaid my letter, and thence his want of courtesy in not replying.

Regretting that I should have found this explanation necessary and in conclusion, I might remark that all these changes that some gentlemen deem necessary for the benefit of the profession cannot, I consider, at the present time be carried out. The profession, though young in this country, occupies as good a position as it does in the mother country, and since my residence in Canada it has certainly made good steps onward. So, like a young child, let us creep before we can walk, with the old motto, "Excelsior," for a cry.

With every desire that good feeling should exist throughout the profession, and thanking you for your kind indulgence in my inroad on your space, I remain,

Yours obediently,

A. F. COLEMAN, V. S., Ontario.

AMES, IOWA, August 5, 1877.

EDITOR REVIEW :

I am just in receipt of the August number of the REVIEW, and wish to testify to the very valuable character of its contents. It is a cause for no small degree of gratification to see that much of the matter is furnished by those who were my former associates and classmates in the American Veterinary College, and who now hold its diploma. When I remember the many enthusiastic members of the profession I used to meet in New York, I realize how much easier it is to keep up the fire when one has the professional head of the brethren to stand by. To those who are congregated along the rim of the continent where the profession has acquired a respectable foothold, the spectacle presented by a solitary Veterinary surgeon in the midst of thousands of square miles of ring-bones and spavins, whole counties of colic, and continents of hog cholera, must excite mingled emotions of sympathy and envy. Here the peaceful smoke of the firing iron curls its fantastic shapes in honor of his name alone, and he bears all unaided the reproach from the granger of the back county, when he awakes in the morning, and finds that one of his mother porkers has committed infanticide during the night, and no Veterinary surgeon was there to prevent it.

There are some of the experiences of the Western practitioner, if not instructive, might be somewhat amusing to the members of the profession in the older districts.

Here is a specimen case : Early in May last I was called to see a

shorthorn cow, and after getting the history of the case and making a careful examination of all the symptoms, the small, weak pulse of 105, the short and painful breathing, the elevated temperature, the foetid breath, the pale, bluish mucus membranes, the persistent diarrhoea, and the emaciated condition, I had no hesitancy in diagnosing the disease a case of *tubercle*. Prognosis unfavorable. I prescribed for the cow, but on seeing her a second time, I advised the owner to incur no further expense but to have the cow destroyed and realize for her what he could. This kind of talk did not suit the owner, as she was a cow that if in good health would have possessed considerable value ; so a neighboring "cowleech" was called in, who, of course, diagnosed it a clear case of *hollow horn*.

The gimlet was produced, and the *horns found to be hollow*. This was told to me by the owner with a small degree of exultation. The condition of the cow was, however, in nowise improved. In the course of time, Cowleech, No. 2, was called in, who manifested no small degree of surprise that so clear a case of "loss of cud," should have been mistaken by two men making any pretensions to a knowledge of diseases of domestic animals. Greasy rags, bacon rinds, and all other ingredients necessary to an approved wizard bolus were procured and formed into a ball, and pushed down the poor beast's throat. In spite of all this treatment, the cow lingered a couple of weeks longer, and yielded to the disease.

I obtained the privilege of making a post mortem examination, and found my opinions fully confirmed by the pathological conditions.

Such are some of our Western experiences. But it is not all thus. The character and qualifications of the men professing a knowledge of Veterinary medicine in the West are such as to deservedly cause every man setting up such claims to be looked on with suspicion till he has proven himself worthy of the confidence of the people.

I may at a future time have something to say to you on the subject of hog cholera, with which I have been having some rather interesting experience.

M. STALKER, V. S.

"PURPURA HÆMORRAGICA."

August 8th, 1877.

MR. EDITOR :

In your issue of August I read a recorded case of purpura hæmorrhagica, treated with strychnia with recovery.

I believe the credit (if any) belonging to strychnia as to its therapeutic effects in cases of purpura hæmorrhagica among us, is cordially accredited to our mutual friend, Mr. Hopkins.

I understand Mr. Hopkins first applied it to what he termed an aggravated case, with no other intent at the time than for its toxicological or experimental effects. But, to his great surprise, the patient recovered. (*Hence the "Bonanza."*)

He commenced with very small doses, say $\frac{1}{4}$ grain (if my memory serves me), and gradually increased it (at times omitted), carried to the extent of producing prostration, as he termed it, then by using supportive measures, and the ordinary treatment for purpura hæmorrhagica, he would carry his patients successfully through. I heard Mr. Hopkins state that this treatment was applied to many cases with the same result, viz., recovery.

Practically, among us the use of strychnia in this disease was something new, especially *as applied*, either in Mr. Hopkins' cases or the one reported in your August issue.

Strychnia, also ergotine, had both been used in the human subject previous to this time, as treatment for purpura hæmorrhagica, both on a different principle and in a different manner of dosing, yet with the same object.

It is not now, nor was it at the beginning of this letter, my intent to discuss the therapeutic action of strychnia; but having carefully read every case (I could get hold of, without making one myself,) treated with strychnia, both those terminating fatally and those terminating favorably, I have failed as yet to discover any improvement whatever in the condition of the patient.

Never have I read of but one case where I thought the drug (strychnia) was properly administered, and that case terminated fatally; in fact, there was not the least abatement in any of the symptoms—he passed straight on through. I do not consider this a test case, either for or against the use of strychnia, yet this is the only case where I thought the medicine was either given on the proper principle (that given by authority,) or in proper quantities.

We are all well acquainted (or should be) with the physiological effects of strychnia; we also should know its general and special therapeutic action, for it is upon this knowledge alone can be based the principles for which it is given, and the results accounted. If not on this principle, then it is applied empirically, and erroneous and decep-

tive effects are recorded for those which, when properly obtained, would be valuable acquisitions to our much needed therapeutics.

"In order to appreciate the value of a remedy," says Headland, "we must have: 1st, a proper understanding of the pathological condition to be overcome; 2d, a knowledge of the agent we employ." The importance of these two rules is commensurate with the grounds they embrace.

Purpura hæmorrhagica, by most authorities, is classified among cutaneous diseases, which, like its name, originated from a frequent symptom, cutaneous hemorrhage. It is not due to any special poison, nor to any organic trouble, hence it is not an exanthemata. If the cutaneous hemorrhage was always a symptom, we could consider it a cutaneous disease, but such is not the case. Again, we find other authorities who classify it under scorbutic affections (hæmatic), which is probably the most correct, in consideration that the blood presents the most *lesions*.

If we accept purpura hæmorrhagica as scorbutic, we must look to the blood for our etiology and treatment.

In relation to the etiology of this disease, we have much yet to learn (which at once depreciates the value of therapeutic measures). From its classification, it should be traceable to an insufficient supply of alimentary principles contained in the food. Such is not distinctly true, since purpura hæmorrhagica is most often met in *isolated* cases, whereas it should prevail as if it were an epizootic. Again, any *special* dietetic treatment avails nothing. Debility, induced by previous inflammatory disease, poor living, *dripathic*, and last, if not least, *vaso-motor-paralysis*. The latter would appear a secondary consideration, superinduced by the morbid blood changes (believing the blood change to be the primary lesion), purpura hæmorrhagica involves danger from loss of blood from the different outlets of the body, and extravagations into serous cavities, lungs, etc.. Exclusive of these sources of danger, recovery under judicious treatment may be expected. The objects of treatment in cases of purpura hæmorrhagica, are the restoration of the normal constitution of the blood, increase of vital powers, and restraint of hemorrhage.

If we knew what the exact change or changes of the blood were, it would be easy to apply the proper remedies.

Then we must do the next best thing, and that is, place the patient on the best treatment, both medical and hygenical, that is conducive to good blood and good health, namely, varied and nutritious diet, in small quantities, frequently repeated, good fresh air (roomy box), and, when possible, I think a little exercise excellent.

Medication, tonic and stimulants, especially the former, which should always be *mineral*, especially the *sulphates*; they have a special action on the great mucous tracts, as well as the blood, and, as already stated, the danger is involved in the hemorrhage from the mucous tracts. In relation to the use of stimulants in this disease, I do not think we will derive any great benefit, unless the appetite is entirely lost. If the patient retains his appetite, and the tonic remedies are carefully and regularly administered, you need not fear diminished or lost vitality, and recovery will be pretty certain. In reference to molar paralysis—if this condition is present as an important factor, then I could understand the importance of *strychnia* and ergotine. Taking my supposition as true, that it is a secondary condition, would not the nutritious food and tonics relieve the difficulty, in consideration of the fact that the blood must be corrected first, otherwise the *strychnia* should be given from the *onset* in conjunction with the other remedies.

In relation to the administration of *strychnia* referred to at the beginning of this letter, I wish to state why it was given in improper quantities, is this: *Strychnia* belongs to that class of remedies whose value and potency is appreciated only by a relative and continued administration. In the case reported in your last issue, and in all others (excepting one) that I have read of, has this irregularity of doses been carried out, and from these records I fail to appreciate any benefit whatever arising from *strychnia* (unless it was complete annihilation). Again, powerful remedies like *strychnia* should be given in a fluid form, if possible; in this way we not only facilitate its absorption, but are surer of its direct effects.

Respectfully,

L. T. BELL, Brooklyn, N. Y.

REPORT OF CASES.

FRACTURE OF THE ULNA.

NEW YORK, Sept. 9, 1877.

TO THE EDITOR AMERICAN VETERINARY REVIEW:

On the 31st of August I was called to see a sorrel mare that had been frightened and ran away. She had ran a number of blocks, and fallen three or four times. I found her standing in the street, with the off fore-leg elevated, with flexion of the humero radial joint, and flexed

at the carpus and fetlock, with the toe about one foot from the ground. On making an examination of the limb, found a slight abrasion of the skin at the posterior portion of the Ulna, and on handling the parts found a complete fracture of the olecranon. I advised the owner to have the animal destroyed, which he did. On making a post mortem examination found that the ulna was broken in an antero-posterior direction, near the articular surface of the radius, destroying the sigmoid notch. The superior portion of the ulna or olecranon was also broken in three pieces. The peculiar position in which I found her standing, I concluded was due to the loss of power of the extensor muscles that attach to the superior portion of the olecranon there by allowing full action of the flexors of the radius. There was also ulceration on the articular surface of the radius.

SAMUEL S. FIELD,
Student to American Veterinary College,
245 E. 24th St., City.

BOSTON, August 24, 1877.

TO THE EDITORS OF THE AMERICAN VETERINARY REVIEW :

GENTLEMEN: With your permission I will describe two recent attacks of illness in a young mare, the property of M. McBarron, Esq., of this city. On the 7th of June last I was first called to her at the stable of Messrs. Warner & Richardson, and informed by the owner that she had been suffering for about three weeks from a kind of distemper. Her condition was then as follows: feverish, pulse fifty-six, breath hot, sharp cough, respirations rough and accelerated, nostrils swollen and tender, septum covered with blisters, copious discharge from nostrils of mucus streaked with blood, mouth hot, intermaxillary glands hard, but not adherent to the jaw, parotids hot and swollen, coat staring, very weak over loins, hind legs swollen, and occasionally ejecting a whitish mucus from vagina. She was inclined to eat a little, and anxious to drink, but did so with difficulty owing partly to soreness of throat. I will not trouble you with the treatment, but merely say that she received excellent care, and in ten days most of the feverishness and soreness of throat had passed off.

The condition of the intermaxillary glands and nostrils—especially the discharge—still continued, and in addition to this the off hock became greatly enlarged from hydrops articuli, probably from a practice she had of thumping it against the stall. As the circulation in the swollen limb became impaired, she was now given daily exercise grad-

ually increased, allowed to pick a little grass, and a fair allowance of nutritious food. Along with this she was given arsenious acid three times daily, commencing with one grain, and gradually increasing to three grain doses; lime was slacked in water where the fumes reached her, and the enlarged glands well rubbed with Iodine ointment. Cloths wrung out of hot water were applied to the hock, and the hoof pared and kept soft so as to offer as little obstruction as possible to the circulation. By the middle of July she had made a good recovery, although some thickening of the hock remained without any lameness. The case gave me considerable anxiety as for some time it had every appearance of terminating in glanders.

She was now given hard drives, and sent to Manchester, New Hampshire, where she again became ill, and was turned out to pasture for a week, then taken up and sent by rail to Boston, where I again took charge of her, at the St. James Stable, on the 14th inst.

August 14.—Found her in the following condition: weak, staggering gait; pulse sixty; respirations forty; low, painful cough; rusty colored discharge from nostrils; urine passing frequently, especially on being moved or when coughing; feces scanty but dark colored; entire absence of sound, and dullness extending over three fourths of area of left lung; dullness over about half of the lower third of right lung, with some friction higher up; and legs swollen.

Treatment.—Gave half of an ordinary cathartic, and a stimulating drink; placed her feet in hot water, and applied stimulants to sides and joints, and as she ate but sparingly, a quart of milk was given noon and night.

August 15.—Lungs same as yesterday; pulse fifty-six. I now noticed that the stall was very wet, and that her urine was passing involuntarily, very clear and intensely acid. Thinking that this might be the result of diuresis and weakness of the bladder, I passed my catheter, in doing so found the external genitals very loose and powerless, and the bladder quite empty, on passing my hand forward, however, into the vagina found it distended till it filled the whole cavity, and clung to the walls of the pelvis, it was half full of urine, the balance being atmospheric air. I now passed my hand into the rectum, and applied pressure to the vagina, expelling both urine and air, when the vagina instead of contracting remained a loose, flabby mass. Having left the catheter inserted in the bladder, I noticed on withdrawing my hand that air passed inwards with a hissing sound. On again inserting my hand per rectum, this time the bladder was found to be distended

to its fullest capacity with air, which pressure expelled as in the other case. I now withdrew both my hand and catheter, and allowed her to stand at ease a moment. Again air began to pass inwards; passing my hand into the vagina I found it again completely filled with air, the meatus remains drawn forwards and downwards, so that the external opening was higher than the vagina, and as urine reached the bladder it was prevented from accumulating there by the pressure of air above. She was unable to expel the urine from her vagina, only when she moved or coughed. The uterus did not appear to be involved. Finding that nothing more could be done, I sponged out the vagina with cold water containing a few drops of nitric acid, gave her dram doses of iodide of potassium in drink three times daily, bi. carb. soda twice, and milk and light food and fomentations as on the previous day.

August 16.—Pulse and respiration improved, secondary cessation distinguishable over about half the former area of dullness, there is still considerable flapping of the nostrils, and a low, timid cough, which causes her to expel some urine though less than formerly. Yesterday's treatment continued.

August 17.—Steadily improving. Lung clearing up; cough easier; rusty discharge from nostril entirely stopped. No urine in vagina, but a little whitish mucus and some air. She urinates naturally. Feces are quite soft, and appetite much improved. There is a long, symmetrical, rope-like swelling extending from the vulva down between the thighs, this commenced to show itself two days ago.

August 21.—She has continued to improve, and is to-day being walked on the floor.

I do not know how many days she had been ailing before I saw her, but the long journey by rail to Boston probably increased her prostration very much.

You must pardon me for troubling you with such a long article. The case was to me quite an interesting one, and so I decided to send it to the REVIEW.

Yours very truly,

WMSON. BRYDEN, V. S.

REGULAR MEMBERS OF THE PROFESSION.

INDUSTRIAL UNIVERSITY, }
URBANA, ILLINOIS.

EDITOR AMERICAN VETERINARY REVIEW:

DEAR SIR:—Will you please publish the inclosed list of members of the Royal College of Veterinary Surgeons, which is official, being the same as is published in the Register of the R. C. V. S. for 1877. It seems to be necessary to us, as surgeons, that the public should be fully aware as to who are qualified, and who are not. Only the other day I received a request from a qualified German veterinary surgeon who is practicing in Chicago, and in his letter to me he stated that there were quite a number of men who styled themselves M. R. C. V. S., and on looking over the Register which was sent him, that not one of them appeared on the list, and he stated furthermore that one or two of them had had the impertinence to go into courts of law and swear themselves as qualified Veterinary surgeons. Such men as those have a great tendency, by their false representations, to very much lower our profession in the eye of the public. Still another case can be mentioned. A fellow came to our neighboring town (Champaign), and stated that he was a graduate of the Edinburgh Veterinary College. On searching their Register, no such name is found amongst her alumni.

Yours truly,

F. W. PRENTICE.

Mr. Thomas Simpson Beech.....	California.....	1835
*" John Bretherton.....	U. S.....	1858
" George F. Bolton.....	U. S.....	1869
" Josh Bushman.....	Washington.....	1862
" John Clark.....	U. S.....	1854
" John Clemenson.....	U. S.....	1843
" Josh B. Coleman.....	N. Y.....	1869
" Lawrence H. Cosler.....	U. S.....	1870
" William Frater.....	U. S.....	1830
" John T. Frazer.....	Rochester.....	1876
" J. W. Gadsden.....	Philadelphia, Pa.....	1858
" Charles Gardner.....	Canada.....	1844
" S. Going.....	New York.....	1870
" J. Gregson.....	Pa., U. S.....	1845
" Edward Haggard.....	U. S.....	1839
" Alex. Halket.....	U. S.....	1840

Those marked * are deceased.

Mr. J. M. Heard.....	U. S.....	1871
" J. C. Hingston.....	U. S., Bay City, Mich.....	1877
" James W. Hoey.....	U. S.....	1840
" T. D. Hulme.....	U. S.....	1863
" W. Irvine.....	Canada West.....	1863
" James L. Irving.....	U. S.....	1870
" R. Jay.....	Davenport, Iowa.....	1866
" Robert Laidlaw.....	Albany.....	1840
" Alfred Large.....	N. Y.....	1861
" Charles Lander.....	U. S.....	1830
" James Law.....	Cornell University, N. Y..	1861
" John Lee.....	U. S.....	1831
" E. Lewis.....	U. S.....	1866
" W. H. Lillyman.....	Boston.....	1840
" Alexander Lockhart.....	New York.....	1865
" McEachran.....	Montreal, Canada.....	1861
" McDonald James Grant.....	U. S.....	1844
" William McIntosh.....	U. S.....	1839
" David Maclachlan.....	U. S.....	1864
" John Marriott.....	Guelph, C. W.....	1870
*" Austin Mellor.....	Philadelphia.....	1872
" T. H. Merrick.....	U. S.....	1874
" E. Moore.....	Albany.....	1877
" Alex. Murray.....	Detroit, Mich.....	1862
" Peter Newton.....	U. S.....	1842
" William Ormiston.....	Mexico.....	1837
" William Petterson.....	Montreal.....	1870
" John Petley.....	U. S.....	1828
" Louis V. Plagemann.....	N. Y.....	1863
*" F. W. Prentice.....	Illinois Indust. University	1869
" James Quallett.....	New York.....	1851
" Thomas K. Quickfall.....	C. W.....	1858
" W. Redmond.....	Charleston.....	1833
" L. Revis.....	U. S.....	1840
" George Sermon.....	Montreal.....	1862
" George Scully.....	St. Louis.....	1858
" Thomas Shaw.....	U. S.....	1871
" Whitfield Smith.....	U. S.....	1849
" Josiah W. Stickney.....	Boston.....	1859
" John N. Taylor.....	West Winfield, N. Y.....	1863
" James Tompson.....	Canada.....	1813
*" Von Nich. Tunzelmann.....	Canada.....	1853
" N. Vasey.....	Rockford, Ill.....	1872
" Alex. Waddel.....	Quebec.....	1835
" William Wallis.....	Charleston.....	1818
" George Wright.....	Albany.....	1825
" Thomas Wyche.....	Chicago.....	1865

Those marked * are deceased.

REGULAR GRADUATES OF THE ONTARIO VETERINARY COLLEGE
PRACTICING IN THE UNITED STATES.

V. C. Atkinson.....	Milwaukee.....	1875
G. W. Bates.....	Wellington, Mo.....	1877
J. A. Brackin.....	Pittsfield, Mass.....	1873
John Bryce.....	Erie, Pa.....	1870
A. S. Cook.....	Binghamton, N. Y.....	1872
F. A. Campbell.....	Canandaigua, “.....	1874
A. Drinkwater.....	Rochester, “.....	1874
John Elliot.....	Toledo, Ohio.....	1871
W. C. Fair.....	Cleveland, “.....	1871
W. Folsetter.....	Evansville, Ind.....	1874
G. Gowland.....	Seneca Falls, N. Y.....	1865
R. D. Howard.....	Castill, N. Y.....	1875
A. Harthill.....	Louisville, Ky.....	1870
J. R. Hayyard.....	Lexington, “.....	1875
F. A. Hood.....	Ogdensburg, N. Y.....	1875
R. C. Hutchings.....	Watertown, “.....	1871
M. J. Henderson.....	Syracuse, “.....	1874
W. Langtry.....	Fort Wayne, Ind.....	1877
A. McLeod.....	Jackson, Mich.....	1872
R. McKenny.....	Michigan.....	1873
M. H. McKillop.....	Chicago, Ill.....	1877
J. Martin.....	Lockport, N. Y.....	1872
T. A. Morrison.....	Lasalle, “.....	1872
G. L. Robson.....	Penn Taw, “.....	—
M. Sutherland.....	Saginaw, Mich.....	1869
M. Stalker.....	Ames, Iowa.....	1877
W. M. Thompson.....	Denver, Col.....	1872
Rob. Wilson.....	Whitehead, Ohio.....	—

VARIETIES AND NEWS.

PROPOSED MEDICAL DEPARTMENT OF CORNELL UNIVERSITY.

At the recent annual meeting of the Trustees of Cornell University, a proposition to establish a medical department of the university in New York City, was referred to the Executive Committee.

LIGHT ON BACTERIA.

A. Downes and T. B. Blunt, announce as a new result in their investigations, that light is inimical to the development of bacteria, and under favorable conditions may prevent their development.—*Scientific American*.

EXPORTATION OF HORSES.

Heretofore the exportation of live stock from this country to Europe had been limited to cattle, sheep and pigs, but lately, thanks to the enterprise of a few gentlemen, horses have been sent to Europe, and have found their a ready market. One of the largest horse dealers of New York City, has within a few months exported and sold in Liverpool and London, not less than 250 coach and trotting horses of all breeds from Kentucky, New York and Michigan, Maine and Vermont. Mr. I. Dahlman, is well satisfied with his enterprise, and intends to furnish our English cousins with many more horses from this country.

SPECIMENS.

SENT TO THE MUSEUM OF THE AMERICAN VETERINARY COLLEGE.

- 82 & 83. Patented Horseshoes to prevent slipping on Ice,
 C. H. Peabody, D. V. S.
 84. Melanotic Tumor from Tail of gray Horse..... J. C. Force, V. S.
 85. Scapula with Ossification of Cartilage..... W. H. Wray.
 86. Fractured Ulna..... S. S. Field.
 87. Seedy Toe, both Fore Feet..... J. L. Robertson, M. D. V. S.
 88. Shark's Jaws..... J. C. Force, V. S.
 89, 90. Patented Rolling Motion Shoe?..... A. Liautard, M. D. V. S.
 91. Urethral Calculi.. E. F. Thayer, V. S., Sec. A. V. R. Assoc., No. 77.

EXCHANGES.

Scientific Farmer, Boston; Country Gentleman, Albany; Scientific American, N. Y.; Medical Record, N. Y.; Journal de l'Agriculture, France; American Agriculturist, N. Y.; Sanitarian, N. Y.; Live Stock Journal, Chicago; Hospital Gazette, N. Y.; Dumb Animals, Boston.

COMMUNICATIONS RECEIVED.

F. S. Billings, Berlin; W. Bryden, Boston; Prof. A. Smith, Toronto, Can.; Prof. McEachran, Montreal, Can.; E. F. Thayer, Boston; M. Stalker, Ames, Iowa; F. W. Prentice, Illinois; L. I. Bell, Brooklyn; S. S. Field, N. Y.; E. Mink, Rochester; Dr. Osler, Montreal.

AMERICAN VETERINARY REVIEW,

NOVEMBER, 1877.

ORIGINAL ARTICLES.

TEXAS FEVER.

BY JOHN MYERS, SR., V. S., CINCINNATI, OHIO.

The daily news are now circulating reports of the so-called Texas cattle plague prevailing in Cleveland, and in some parts of Michigan. This put me in mind again of an article on the same subject I had written, and intended for the *Repertorium der Thierheilkunde*, that journal having several times referred to the disease. The delay of transferring it to its contemplated destination is due to the intention of adding to the description, if possible, a more diagnostic value by the analysis of the blood, but have not, to the present date, been able to procure any, as the disease has not made its appearance since in this vicinity. Now, the article does not correspond altogether with the present state of affairs, but I will submit it just as it was composed at that time to the REVIEW, the standard messenger of the interests of American veterinarians, to disclose if agreeable.

The scrupulous management of the sanitary police ordination on the eastern continent partly, and partly the contemplated exportation of American cattle induced me to draw the attention of the veterinary medical profession to this enzootic, viz.: Texas cattle plague, Texas fever, Spanish fever, and splenic fever, the propagation of which is thought to be produced by contagion. The virus generated within cattle of the Gulf region (being endowed with mysterious properties), which is transferred by them in the eastern and central States, where they deposit and diffuse the malady amongst the cattle with which they come in contact, whilst their own health remains unimpaired.

Considering these circumstances, it is quite probable that the authorities of such districts in which foreign cattle are unloaded will enforce protective measures against the invasion of plagues, and, more-

over, should one or more amongst a lot of these bovine emigrants prove indisposed, which is very likely the case when such dumb animals that have never been incarcerated before are doomed to a fortnight's rail or sea journey, they would make their inspection with even more precision. As to what extent such sanitary precaution is necessary, the here deposited facts in reference to the disease may be taken into consideration. As incomplete as they are, I deem it justifiable to communicate fragments, expecting by these means to stir up scattered relative substance which might in the end serve as a foundation of trustworthy instruction as to how this evil might be prevented and cured.

SYMPTOMATOLOGY.—This disease compared with, or even taken for anthrax, is characterized by a painless evacuation of a reddish black, sometimes coffee-colored, turbid not always abnormal odored urine, which after standing for twenty-four hours forms a brick-colored precipitate, which is sometimes streaked with blood. At the same time the secretion of milk is suspended, which phenomena is the first to attract the owner's attention. Rumination suspended, the food is rejected, and the desire for water is moderate. The patient remains isolated from the herd, with head pending, ears drooping, a viscid, saliva discharge from the mouth, mixed with mucus from the nose, muzzle moist, running at the eyes, though not constant, conjunctiva pale, making the traversing vessels look prominent but not engorged. At the outset the temperature is heightened, then varies, and eventually lowers. In standing posture the limbs approach each other; in a recumbent position the limbs are flexed, the head extended with the inferior maxillary resting on the ground, and if an unsuccessful attempt is made to get up the animal recedes back upon its side. During the first stage the gait is dragging, gradually getting unsteady, and at last altogether impossible, indicating a complete collapse of the nervous and physical force. The mucous membranes, particularly that of the buccal cavity, present a greyish hue; deglutition sometimes impaired; fecal matter at the outset soft and occasionally streaked with blood, the color depends upon the previously consumed food, and if the patient lingers any number of days the consistency is changeable. Peristaltic movements sluggish; never observed colicæ pains. The frequent respirations are sometimes accompanied by a cough and groans, without any forcible assistance of the abdominal and thoracic muscles. In the majority of cases the circulation keeps pace with the respiratory acts numbering 80, 100 to 120 per minute, and as the pulse increases it loses in tonicity. The action of the heart is, in general, scarcely perceptible. Specimens of

blood circa, two thirds of a pint, withdrawn from the jugular vein, resembled more arterial than venous blood, coagulated within ten minutes, separating a reddish yellow tinged serum. It is understood that the complexity of the symptoms are not at all times alike, they being dependent upon the progress of the case. The most important diagnostic symptom is the character of the urine, but since we are unable at all times to be present personally, the history of the case as given by the attendant (however unreliable at times), must suffice, and is indispensable unless previous cases appeared in like manner, which, of course, must be traced in the same way.

AUTOPSY.—In one case I observed a post mortem rigidity which I did not notice in others. Tympanitis as well as emphysema I observed only in such cases as have been dead for several hours; whilst in those having just expired collapse of the abdominal cavity was found. The blood vessels of the subcutaneous tissues very seldom engorged. In some cases the muscles were pale, and in others bluish tinted. The adipose tissues usually presented a healthy aspect, though in some cases icteric. The abdominal cavity usually contained from one half to one pint of serum. Peripheric appearance of the stomach often deviated from the healthy state; its surface in relation to the liver and spleen partook from the former a yellowish color, and from the latter a sanguinous hue.

The contents of the rumen was nearly always voluminous; the reticulum partly or totally empty; the omasum filled with the usual quantity of dry food, in few exceptions, however, empty; and the abomasum contained mostly an offensive, mushy mass. The contents of the ileum, cæcum and colon in nearly all cases was of a like offensive character; often met with dry, bloody feces in the rectum, unless death occurred during purgation. The external presentation of the alimentary canal seldom bore any evidence which would indicate the condition of its inner aspect; the discoloration of one or the other organs, permeated with a yellowish tinge, are the most frequent superficial appearances. The epithelial lining of those destroyed presented an inflammatory character, whilst in those that died it was partially detached, of a greyish hue, the denuded muscular coat congested; the mucous lining of the small intestines relaxed, coated with bloody mucus, and distended by the presence of gas. The peyers patches were more voluminous and livid. The internal coat of the large intestines, and a portion of the ileum presented circumscribed greyish green or yellowish surfaces, with gangrenic odors, the destroyed were void of the latter change. The

liver of those destroyed in the second stage was merely enlarged, indicating an acute or sub acute inflammatory character ; in those that died it was generally found to be undergoing decomposition ; the color of its exterior was either of a yellowish, brownish or brick color ; the veins traversing the liver contained a scanty quantity of blood of a purplish hue. The gall bladder was usually filled with a dark colored bile, the consistency of honey, or a more normal fluid of a yellow, greenish color. The spleen in destroyed cattle was enlarged, its texture but slightly altered, in fact merely in a hyperæmic state ; in those that died it was more voluminous, emphysematose, pulp semifluid and viscid, analogous to decomposed blood. The lumbar and iliac glands in two cases I found considerably enlarged and in a decomposed state. Color and texture of the kidneys was varied, the parenchyma of those destroyed at the outset, presented a hyperæmic, slightly swollen, dark red, but compact appearance ; while of those that died it was quite black or dark grey, flabby and seemingly at the point of dissolution. The bladder, in the majority of cases was filled with a blood red or a coffee colored urine which readily responded to the tests for albumen, the mucous lining relaxed without evidence of inflammation. Lungs generally healthy, the few exceptions showed that the inflammatory pathological deviations were caused by irrational drenching, which fact could be traced up to the larynx. In such cases not only the lining of the trachea, but also the adjacent muscular and cellular structures were infiltrated with blood. Heart pale and flaccid. In one case the endocardium was echymosed on the right, in another on the left, and in the third on both sides ; of those that died it contained ash grey and dark colored fibrinous clots. In few exceptions the pericardium was the reservoir of several ounces of serum. The vena cava usually contained small remnants of blood or relative clots, some of which, however, on account of their consistency and discolor might have been taken for pathological products had not the topography of it been given.

The analysis of the blood undertaken by order of the Board of Health remained without result. In order to satisfy my own curiosity, I requested an expert to examine such blood microscopically (suspecting blood changes, such as anæmia, leucomia, and the like), but he informed me naively that he was only acquainted with the analysis of human blood. The symptomatology of this disease as described in the handbooks at my disposal differed with my cases, therefore I was more anxious to know with what I had to deal. I did not pursue my efforts any further at that time, as I was in hopes of very soon obtaining fresh

blood in order to have it analyzed through some one else, but have not since succeeded in obtaining any.

The progress of this disease is a speedy one, the majority expiring within two and a half and four days ; in exceptional cases they may linger for seven and eight days. The course seems to be governed by the variation of temperature ; I, at least, observed that those attacked in the months of July and August took a more rapid termination than those taken sick in September.

ETIOLOGY.—Some individuals claim that this is a mystery ; others assert that it is originated by direct contagion communicated by cattle transported from the Gulf regions, but cases have come under my observation in which I was unable to trace any contagion, and by all appearances assumed the character of a spontaneous origin, for which reason I cannot agree with the aforesaid assertion unconditionally, although we have sufficient proof that cattle running at large, or in pasture where they may come in contact with the Texas cattle, are more readily exposed to infection than those kept in stables, and from May until October exclusively, and less in wet than in dry seasons, when the scarcity of fresh, good water compels them to quench their thirst with stagnant water, numberless infusoria and other ingredients deleterious to health are conveyed to the system in this way, the result of which is a contamination of the chyme, whose composition besides the withered grass consists of non-nutritious and even toxic vegetation (as they desire to refresh themselves with something cool and juicy will eat plants and drink water which at other times they would refuse), thereby infecting the alimentary canal and its associate organs. The injurious effects do not confine themselves to the vascular system alone, but also the functions of the adenotomic organs in the abdominal cavity, which are very instrumental in the formation and purification of the blood, will get impaired as soon as these obnoxious ingredients arrive for transformation or elimination, causing detrimental results not only to the glands themselves, but to the whole vital organism, which may, under favorable terms, be sufficient to develop an infectious germ giving impulse to spontaneous cases which (companions living under the same hygienic condition are prepared to adopt) multiply and disseminate the virus wherever they arrive amidst the mature bovine inhabitants of the hills, as well as low lands, valleys, creek and river precincts, and particularly those districts influenced by the tide.

Whether the infective principle is fixed or volatile, and what its *modus operandi* is, remains to be ascertained yet. Considering the local-

ity where the disease appears most frequent, we are obliged to pay its tribute to miasmatic influences. The evidences we have persuade us to believe that the system of the Southern stock must be impregnated with the effluvial atmosphere prevailing in that climate. This may account for the inviolability of themselves, and tenacity of the virus which our native stock inhale from their excrements. Even the expirium may be charged with poison, and will act as such in the first summer if they change their homes to any of the northeastern States. It is also claimed that they are subject to infection after being acclimated.

Not having anything essential to add to this miasmatic topic, I do not hesitate to acknowledge my predilection that the germ theory embraces the most plausible explanation for the enigmatic rapid dying away of whole droves, dairies, etc., within a week or two. Innumerable statements of such mortalities are recorded in agricultural reports and periodicals, but the sporadic cases, which are fully as important as to whether they are contagious or non-contagious, are almost entirely ignored, as in such instances the pecuniary loss is estimated more than science. To prevent the former it is necessary in the first place to examine thoroughly into the causes and nature of the disease, a problem which is yet to be solved, and must not be neglected if prophylactic measures are to be instituted and expected to prevent such calamities. My experience as to the period of incubation has not familiarized me enough with its circumstances to give a decisive judgment. Two days to five weeks seems to be the average time the poison requires to develop the disease.

PROGNOSIS is unfavorable, especially in midsummer.

TREATMENT.—No administered remedy as yet has given any satisfaction. The salycilic and carbolic acids, with some slimy infusions, seldom seemed to do any good. Bromide potassa, with glycerine extr. eucalyptus glob. and water proved to be no better, nor did quinia give any more favorable results. Bathings of the abdominal regions with warm water, mustard or red pepper were also resorted to. Must, however, admit that my therapeutical experiments were dissatisfactory. The rapid course and lack of time to give the proper attention to the action of medicines frustrated a systematic procedure.

It appears to me credible, if not indisputable, that this morbid condition belongs to the acute decomposition of the blood (sepsis sanguinis), and signalizes itself principally through the abnormal colored urine, undoubtedly owing to some liberated hematin and cholochrome. It makes its appearance in the hot summer months.

Calves and other ruminants have proven to be exempt from it. A superficial glance at this picture of infirmity will reveal at once that the analogy with anthrax is untenable. But, still, Mr. Fleming in his excellent work on sanitary science and police, favors that idea. I also express doubt as to paragraph 4, page 212, see vol. (Mr. Fleming's) which reads as follows: "Animals receiving the infection from Southern cattle do not communicate it to other natives, etc." I have no positive proof of the reverse, but to caution interested individuals I deem it necessary to cite two instances which will not correspond with the assertion of Mr. Fleming, namely, two years ago (midsummer) a farmer, Mr. Anderson, near Hamilton, Ohio, made a contract with two drovers to supply him with neat cattle, *home breed*. They filled their engagement with two lots. The second transport arrived two weeks after the first. Two days after the second lot arrived, one of them took sick and died. Twenty-four hours after, one of the first supply had its turn and died in two days. From this time on, one or two stepped out every day without distinction of the two supplies, until the drovers took away the remaining ten of the last lot, the others apparently mending. A repetition of the same occurrence took place at a distillery in my neighborhood. All went well until the second division was installed, when sickness set in, but owing to the low temperature which came to their rescue only four per cent. were lost. In this last instance we see the malady break out in the stable. Animals fed on hay and corn swill (seldom heard of), and in both instances the native cattle have been apparently disseminating the ailment amongst themselves. Not having any evidence as to whether one or all have been infected by the Texas stock, I leave it to others to make their own comment.

THE HISTOLOGY OF THE MAMMARY GLAND OF THE COW, AND THE PATHOLOGICAL CHANGES OF THE SAME BY PERLSUCHT.*

BY N. KOLESSNIKOW, ST. PETERSBURG.

(Medical Student at the Pathological Institute in Berlin.)

Translated from Virchow's Archiv., Vol. 67, Part 4, P. 531.

BY F. S. BILLINGS, OF BOSTON, MASS.

The mammary glands are constructed, as is known, on the type of conglomerate glands. They possess lobule formed by the union of the alveolæ, from which the ductus lactiferi proceed, the branches of which form the excretory channels. Between the lobule and alveolæ we find connective tissue in which vessels and nerves penetrate.

The alveolæ have, during the process of lactation, a clovated form, their length being 0.105–0.180 m.m., and diameter 0.060–0.120 m.m. The alveolæ form cysts in which we recognize the secreting epithelium and membrana propria. The epithelium which lines the inner surface of the membrana propria varies in different parts of the gland. That in the alveolæ being cylindrical and cupical in form, and from 0.012–0.018 m.m. in size, having a fine granular protoplasm with a large oval or round nucleus which is very refracting in the fresh preparations. But if the preparation be hardened in Müller's fluid or alcohol, and stained with carmine or hematoxylin, there may be seen one or two nucleoli in the nucleus. Under the epithelial layers may here and there be seen small, round subepithelial cells, sometimes pressed closely together, exactly corresponding to those forms described by Heidenhain† as a strata of young epithelial cells (germ cells) in the submaxillary gland. In other lobule the alveolæ possess a stratiform epithelium, the cells of which are polygonal in form. The innermost strata of these cells are the largest, and usually contain fat-globules. Beneath the inner layers of polygonal cells we find one or two rows of round subepithelial cells, varying from 0.003–0.006 m.m. in size.

The fat-globules are formed by the contents of the alveolæ and are designated *milk-corpuscles*. Upon the membrana propria we occasion-

* *Perlsucht* is the German name for the disease commonly termed "*tuberculosis*," but it is doubtful if this name is applicable, as will be seen from the following description. Therefore, for the want of a better, the German word is used in the translation.

† Stricker's Handbuch d. Gewebelehr, vol. i., p. 310.

ally find flattened polygonal cells, which by the action of a half p. c. solution of arg. nit. stained the protoplasm yellow or yellowish brown, whilst their contours were black. In all these cases the membrana propria appeared as an idiocentric membrane of connective tissue, whose connection with the epithelial cells could not be distinguished. The epithelial cells are completely isolated from the membrana propria. I saw the epithelial cells become detached, scales, which upon a closer observation appeared to be isolated epithelial cells, which had been attached to the membrana propria by means of a glutinous substance.

Henle (*Anatomy II.*, p. 46), was the first to observe and describe these stellate cells which belong to the membrana propria in the mammary gland of the human subject. Langer (*Stricker Handbuch der Gewebelehre*, 1872, p. 627), confirms Henle's observation, and says that the membrana propria consists of the so-called stellate cells. Kölliker (*Handbuch der Gewebelehre*, 1867), describes the membrana propria as a structureless membrane; and Furstenburg (*Die Milchdrüse der Kuh* Leipzig, 1869), came to the same conclusion after investigating the mammary gland of the cow. Langhaus (*Virchow's Archiv.*, vol. 59), thinks that the stellate cells form no constant part of the membrana propria, but that it is a structureless membrane or composed of spindle-shaped cells.

In order to study the structure of the membrana propria, I took the normal mammary gland of the cow during lactation, and investigated fresh preparations as well as those hardened in Müller's fluid and alcohol, and stained with carmine, hematoxylin, eosin and tincture of iodine. I removed the epithelial layer from the membrana propria of some sections by penciling, others were shaken in distilled water.

In preparations prepared in this manner the membrana propria appeared as a membrane composed of flattened stellate connective tissue cells, united by means of their processes. By a closer investigation I convinced myself that their projections proceeded from the central part of the nucleated cells not as reticulum, but are to be considered as striæ seen in the compact, homogeneous membrane, and that these fibers with their stellate cells and the homogeneous membrane forms a histological unit. In other alveole these striæ were spindle-shaped, from 0.003–0.012 m.m. in diameter, and 0.015 m.m. apart, and ran parallel to the greater diameter of the alveole. From these striæ pass off processes which appear as fine condensations (and remind one of the reticulum), of the homogeneous membrane lying between the described striæ. In the center of the stellate, and in various parts of the spindle-formed

condensations, we find round or oval nucleü from 0.003–0.006 m.m. in size surrounded by a thin layer of protoplasm. For the histological unity of the homogeneous membrane with its striæ-like thickenings, speaks not only the transformation of this condensation in the membrane, but also the circumstance that this membrane could not be isolated by penciling nor through shaking it in distilled water. The membrane was uncolored by arg. nit. (half p. c.), whilst the glandular epithelium was stained yellow or brownish yellow; the membrana propria offered a tolerably obstinate resistance to the action of weak acids and dilute alkalic solutions. I found the membrana propria of the mammary gland of the cow had the same proprieties as other acinous glands as described by Boll (*Bietrage zur mikroskopischen Anatomie der Acinösen Drüsen*. Berlin, 1869). The interalveolar connective tissue is of a fine, fibrous variety containing oval and spindle-formed cells, which are often united to the membrana propria by their processes. The diameter of the interalveolar connective tissue is, as a rule, from 0.003–0.006 m.m. Between the blood capillaries of the interalveolar connective tissue and the outer surface of the membrana propria, we find encircling the alveolæ as described by Coyne (*Centralblatt f. d. med. Wissenschaft*, 1875, p. 110), in the mamma of the human subject. In order to convince myself of the existence of perialveolæ (periacinic) lymph-spaces, I injected into the interalveolar connective tissue of the mammary gland of a fresh slaughtered cow a half per cent. solution of arg. nit. In several preparations we observed black or brown rings around the alveole which I am inclined to consider as lymph-spaces filled with arg. nit. In other specimens I detected these rings in connection with lymph-capillaries.

The lacteal ducts are lined with a single layer of cylindrical epithelium from 0.015–0.018 m.m. in length, and 0.006–0.012 m.m. in diameter. These cells possess a fine, granular protoplasm with an oval nucleus 0.003–0.006 m.m. in diameter which is situated near the membrana propria. The contours of the protoplasm cannot be distinctly distinguished in fresh preparations, so that it is difficult to distinctly define single cells.

The nucleus in fresh preparations is refracting, but those treated with Müller's fluid and alcohol become granular. Between the basic ends of the cylindrical epithelial cells one sees, here and there, small, round, oval cells, containing large granules, from 0.003–0.006 m.m. in diameter, the so-called subepithelial cells (germ cells). The cylindrical epithelial cells are not so projecting in the small, excretory ducts as they are in the

large, and they assume a cubical form as they enter the alveole, being 0.012 m.m. in size. In the smallest excretory ducts, I find the membrana propria possesses all the above mentioned characters. Their striæ runs parallel to the length of the excretory duct, the distance between each being from 0.009–0.015 m.m. The membrana propria could not be recognized in the excretory ducts; in its place I saw interweaving connective tissue fibers lying parallel to the length of the excretory ducts, as Henle has described in the mamma of the calf.

In the interlobular connective tissue, I found oval, stellate and spindle-shaped connective tissue cells, and elastic fibers as well as non-striated bundles, from 0.015–0.045 m.m. in thickness, surrounding the lobule. In these muscular bundles, particularly after staining the preparations with hematoxylin, I could distinctly recognize the non-striated muscular cells (myoblasts) having the following dimensions 0.030 m.m. long and 0.003–0.006 m.m. in diameter. The width of the interlobular connective tissue is from 0.180–0.510 m.m. The arteries and veins follow the same course as the excretory ducts. The capillaries wind spirally round the alveolæ, or form a network upon the external surface of the membrana propria.*

After these histological discussions, I will describe the anatomical changes upon the mammary gland of the cow from perlsucht.

Perlsucht, as is known, is peculiar to cattle, and develops itself upon the pleura and peritoneum in dense nodule the size of peas or hazel-nuts, appearing either as large, single papilliform tumor, or as small clusters united to each other and to the surface of the serosa by fibers of connective tissue. These are known in pathology under the name of nodule (perlknöten). The sectional surface of these neoplasms presents a dense and coarsely fibered appearance in the peripheries, and are soft and fine fibered in the center. In the latter case the center is caseous or calcareous. The lymphatic glands most frequently suffer from metastasis of the neoplasms, but sometimes the lungs and other organs are often complicated. As early as 1817 Dupuy described perlsucht as a specific disease, identical with tuberculosis of the human subject. In the year 1831 Gurlt (*Lehrbuch der pathologischen Anatomie der Haussäugethiere*), was opposed to Dupuy's opinion, and considered the nodule as sarcoma.

Virchow† was the first to thoroughly examine these neoplasms and

* The blood vessels were injected with the following: Berlin blue, 5 gr.; oxalic acid, 5 gr. gelatine, 50 grs.; aqua, 50 grs.

† Virchow. *Wurzbürger Verhandl.*, 1857, vol. 8, p. 143. *Geschwulste*, vol. 2, p. 739.

describe them as lymphosarcoma. The lymphosarcomatose nature of these neoplasms is grounded (accorded to Virchow) upon the fact that giant cells are developed in the connective tissue matrix, from the connective tissue cells, also from the persistency of the elements lying in the spaces of the coarse reticulum, as well as from the progressive, sometimes very acute growth of these nodules, and metastasis accompanying the same.

Gerlach,* Leisering,† Spinola,‡ and others have fed different animals with nodules, tuberculous caseous masses, as well as with the milk and flesh of cows which have succumbed to perlsucht. In these as well as in other animals which have been similarly treated, neoplasms develop in various organs, and that the small nodules were observed to be very similar to the miliary tubercles of man.

From these experimental researches as well as the explanation and clinical detail of perlsucht, led these investigators to the conclusion that perlsucht by cattle, and tuberculosis of the human subject were identical, as Klebs § has already attempted to show in another way.

Schüppel|| examined the nodules (perlknöten) and tubercles histologically. He thought that both the nodule and the miliary tubercles developed out of giant cells, and that the giant cells were characteristic of both in diagnostic relations. Schüppel also based his assertions of the identity of nodules and miliary tubercle upon their histological construction.

Gerlach, Leisering and others returned to Dupuy's opinion. This opinion seems to have much stress for itself, but it is not universal as is shown by experiment, thus miliary tubercles develop themselves if they find a suppurative or a caseous center (Fränkel and Cohnheim, Ruge), and especially from foreign bodies on the introduction of neoplastic detritus (carcinoma, sarcoma and others), into the organism, or from the products of retrogressive metamorphosis of tissues (Vulpian, Lebert, Wyss).

The following question was submitted to me by Prof. Virchow: "What patho-anatomical changes take place in the mammary gland of the cow by perlsucht?" I accepted this proposal with great pleasure,

* Gerlach. Virchow's Archiv., vol. 51, p. 290. Archiv. f. Thierheilkunde, Berlin, 1875, vol. 1, p. 1.

† Leisering. Bericht über das Veterinarwesen in Sachsen. 1864 and 1870.

‡ Spinola. Handbuch d. Patholog. und Therapie. Berlin, 1858. Vol. 2.

§ Klebs. Virchow's Archiv., 1868, vol. 44, p. 266; 1870, vol. 49, p. 291.

|| Schüppel. Virchow's Archiv., vol. 56, p. 38.

because there has been so little done up to the present time to dissolve this question.

The material for the following experiments were from the mammary glands of six cows slaughtered on account of perlsucht.

In one case I found by an histological investigation of the mammary gland, lymphosarcomatose neoplasms in a very premature stage; in the other five there was merely catarrhal inflammation of the lacteal ducts and chronic interstitial mastitis.

1ST CASE. METASTATIC LYMPHOSARCOMATOSE NODULES IN THE MAMMARY GLAND.

The animal was nine years of age, and by dissection we found nodules (Perlknötchen) varying from the size of a pea to a hazel-nut, upon the pleura, in the lungs and bronchial glands.

There discharged from the sinus-lactiferi and ductus-lactiferi, a yellow pus-like fluid, containing small flakes. From a microscopical investigation of this fluid I discovered a large quantity of round cells (pus-corpuscles); also a number of white blood corpuscles, which contain one or two small nuclei, or a single large one. The above mentioned flakes appeared, under the microscope, as a conglomerate of round cells, which were held together by a granulose mass, soluble in acet. acid. The tissue of the mammary gland is compact, especially in the superior part of the gland. The interstitial connective tissue is very much developed, particularly in the vicinity of the "vena mammaria postica," where one distinctly observes white striæ of connective tissue; some parts of the gland lobule are atrophied, whilst other parts are elevated above the level of the cut surface, in the form of globules, about the size of peas; here and there one sees spots resembling adipose tissue, instead of the white lobule.

The lymphatic glands in the neighborhood of the "vena mammaria postica" are in a hypertrophic condition, and contain a great number of nodules, which cannot be distinguished from those on the pleura; the parenchyma has almost entirely disappeared in the center of these glands, and replaced by nodules (perlknötchen), and we can only here and there recognize remnants of the glandular tissue in the peripheries of the gland between the nodules.

Different parts of the mammary gland were submitted to examination; some in the fresh condition, others after being hardened in Müller's fluid, or a 36 per cent. solution of alcohol. Some of the microscopical

sections were examined uncolored, whilst others were stained (according to Rauvier's* method), by hematoxylin and picrocarmial.

Sections taken from the surface of the fresh mammary gland, after being scraped or teased out, and treated with a half per cent. solution of natrium chloratum, presented, under the microscope, round, stellate, oval and spindle-shaped cellular elements, as well as the so-called giant cells. The round cells contain a large nucleus, with one or two nucleoli. In the stellate, oval and spindle formed cells, we found oval or biscuit shaped nuclei, with one or more nucleoli. The giant cells were round, stellate having small or large processes. The protoplasm of these cells was granular. The nuclei were situated either in the center of the cell, or occupied the whole or only part of the periphery. Sections of the fresh mammæ, made with a razor, demonstrated that in some places the interstitial tissues were in a fresh hyperplastic condition; other places, on the contrary, were to be recognized in the later stadium of chronic interstitial mastitis in a high grade of development; so much so, that the interstitial connective tissue was present in double the quantity it is under normal conditions; further, between the lobule, and also the alveole of the glands, I saw round or oval nodule of a lymphosarcomatose character, which have been described as the elements of the nodule (perlknöten). The nodules are from 0.075–0.450 m.m. in size, and are composed of giant cells, connected together by comparatively long and ramifying processes. They are also united with the surrounding stellate connective tissue cells, and connective tissue fibers, which form the reticulum of the nodule. In the alveole of the reticulum, one finds giant cells which exactly correspond to those just described; also elements containing a single nucleus, which resembles granulations, or lymph cells, between which one perceives fine fibers in connection with the reticulum. In some lobule, the excretory ducts were obliterated, whilst others were varicosely dilated, and filled with round cells.

The alveolæ were atrophied in some places, but in others they are distended, and lined with cubical epithelium. In their lumen, one finds a great quantity of fat-globules. These distended alveolæ were to be found in such places as we have above described as microscopic white lobules, resembling adipose tissue.

The investigation of preparations hardened in Müller's fluid, rendered it possible for us to explain, and more exactly comprehend, the above-mentioned patho-anatomical changes.

* Rauvier. Traite d'histologie. Paris, 1875.

In the above examinations of fresh preparations, treated with a half per cent. solution of natrium chloratum, I could not clearly define the epithelium of the alveolæ, and of the excretory ducts ; nor of the cellular elements of the previously described nodules (knokhen) ; the protoplasm of the cells was very indistinct, but the nuclei could be more distinctly seen. By treating specimens with Müller's fluid we render the cell elements more distinctly limited from their surroundings, while the protoplasm appears slightly granular, and the nucleus refracting, and of a round or oval form. The nuclei are seen more distinctly if the preparation be hardened in alcohol and stained with hematoxylin ; whereas, if the specimen be treated with picrocarmine, the nucleus is stained red and the protoplasm yellowish red, thus rendering the nucleus less visible. By coloring the specimen with carmine, this purpose is frustrated, for not only are the cell elements stained, but also the connective tissue. The case, however, was different when hematoxylin was used ; here the nucleus was stained light violet, and the protoplasm bluish, whilst the connective tissue remained unstained.

Preparations prepared in this manner facilitates the study of the pathological processes in the interstitial and glandular tissues of the investigated organs. Therefore, I am in a condition to discuss more closely the general phenomena already given of the patho-anatomical alterations. The interstitial connective tissue is exceedingly developed, and infiltrated with one or more round cells. Between these round cells I found giant cells, either separate or connected with each other, their size being from 0.030–0.075 m.m., and containing from 3–16 round or oval nuclei—from 0.003–0.006 m.m. large. Most of these nuclei are found near the periphery, and very seldom in the center of the giant cells. When the protoplasm is acted upon by a half per cent. solution of acet. acid, it becomes clearer, and the nuclei are more distinctly seen. The relations of their processes to one another, as well as to the stellate and to the reticulum, were exactly as we have already described. I could also distinguish isolated giant cells among the connective tissue fibers. If the preparation be teased out, the reticular tissue distinctly shows itself, and reminds one of the adenoid tissue of the lymph glands. Between the connective tissue fibres, which encircle the alveolæ, and those deposited around the neoplastic nodules, one sees various stadium of hypoplastic connective tissue, and whole rows of round cells, containing a large nucleus. In single preparations, the reticulum, which generally surrounded the giant cells, was replaced by round, oval, nay, even by epithelium cells. I recognize between the round and oval cells,

as well as in the reticulum, granular protoplasmic cells, about of hepatic cells or epithelial cells, which we find on the mucous membrane of the mouth. The cells contain 2-3 nucleü, 0.003-0.006 m.m., and from 2-5 nucleoli.

The blood and lymph vessels which we find throughout the normal interstitial tissue, are in many places obliterated, and the final ramifications of the blood vessels often appear as continuous lines of spindle-formed cells.

The patho-anatomical changes in the alveolæ and the excretory ducts deport themselves as follows: The single lobules are contracted, and far more distant from one another than in the normal condition; the alveolæ are distended cyst-like, through the obliteration of their excretory ducts, partly atrophied, partly obliterated in such a manner that in their place rows of spindle-formed cells were to be perceived, which showed their origin through their connection with the membrana propria of the excretory ducts.

These phenomena find explanation in the hyperplasia which has taken place upon the interlobular and interalveolar connective tissue, as well as in the great number of neoplastic nodules. In the partly obliterated, partly varicose distended excretory ducts, we notice a strata of cylindrical epithelium, under which may be seen one or more strata of germinal epithelium in a strata of proliferation; further, thick fibers of connective tissue, which stand in connection with the surrounding connective tissue and the membrana propria.

In this case we observe numerous nodules in the interstitial tissue of the mammary gland, which occasion through their development either distention or contraction of the alveolæ and excretory ducts.

We look upon these nodules as connective tissue neoplasms for the following reasons: Their matrix is connective tissue, which indicates the progressive development of the neoplasm, and surrounding the elements one finds extra-cellular products. In respect to the reticulum (which has already been described), of these neoplasms, together with the round elements and extra-cellular products found in it, I believe myself justified to consider these neoplasms as lymphosarcoma.

It remains yet to be mentioned, that the giant cells found in these neoplasms, which is already known to many, are essential elements of the nodule. According to Virchow,* giant cells form a constituent of

* It is due to Virchow that we no longer look upon all caseous products as tubercles. Through his researches the comprehension of tubercle is sharply defined. He considers tubercle to be a group of lymphomatose growths of an unstable character, whilst he describes lymphosarcoma, as well as perlknöten (nodule), as neoplasms, possessing a more permanent character.

the most varying neoplasms, and not only develop themselves out of the elements of other tissue cells, but also form epithelial cells, muscle fibres, capillaries, and the endothelium of veins (Virchow's Archiv., vol. 14, p. 51). Ziegler* considers the giant cells as altered colorless blood corpuscles. Rindfleisch† thought they originated from epithelial cells. Brodowsky‡ considered them to be germ cells from capillaries. Schüppel and Visconti§ held the opinion that they developed from blood vessels. Klebs, Köster, Langhaus and Hering|| viewed the giant cells as transverse sections of capillaries and lymph vessels. According to Weyss, the giant cells take their origin in a confluence of granulation cells. I have never been able to see the formation of giant cells by the degeneration of blood-corpuscles, nor from the germ cells of capillaries. I have observed bodies resembling giant cells in the nodule (perlknöten) of the pleura and lungs, but upon examining them more closely, they appeared to be changed blood vessels; not only was their connection with the blood vessels visible, but there was also a quantity of round and oval elements at their borders, which was nothing more than a proliferated condition of the capillary epithelium, and that the fine fibrous or granular masses in the centre of these formations were nothing more than coagulated fibrine. Besides these bodies, genuine giant cells were visible in the nodule (perlknöten) of the pleura, lungs and mammary gland. I perceived round oval connective tissue elements, having a large nucleus; also, somewhat larger stellate cells, containing 2 or 3 nuclei, together with giant cells; and I am inclined to consider the two first as stages of development of giant cells.

I have also found the mammary gland of animals slaughtered on account of perlsucht, to present exactly the same histological construction as that which Virchow found in the pleura, lungs and lymph glands of cows affected with perlsucht, and which he described as lymphosarcoma.

This investigation led me to the conclusion that lymphosarcomatose nodules can develop themselves as metastases in the mammary gland of

* Ziegler. Experimentelle untersuchungen über die Herkunft, der Tubercle Elemente mit Besondere Berücksichtigung der Histogenese der Reiszellen. Würzburg.

† Rindfleisch. Lehrbuch der pathologischen. Gewebelehre, 1875.

‡ Brodowsky. Virchow's Archiv., vol. 63.

§ Visconti. Sulla origine della cellule gigantesche del sarcoma gigante-cellulare del tubercolo e. delle ossa. Milano, 1875.

|| Klebs: Virchow's Archiv., vol. 44, p. 286. Köster: Virchow's Archiv., vol. 48, p. 95. Langhaus: Virchow's Archiv., vol. 42, p. 382. Hering: Histologische und experimentelle studien über Tuberculose. Berlin, 1873. P. 105.

animals suffering from perlsucht, and that perlsucht is not identical with tuberculosis.

CATARRH OF THE LACTEAL DUCTS AND CHRONIC INTERSTITIAL MASTITIS.—FIVE CASES.

The animals were of various ages between eight and ten years.

From dissection one found nodules (perlknöten), from the size of a pea to that of a hazel-nut, upon the pleura and in the bronchial glands.

There was a great quantity of a dense pus-like fluid discharged from the sinus lactiferi through the medium of the teat. From a microscopical investigation of this fluid, I found a considerable number of small cells containing a single large, or several small nuclei; also, occasionally, epithelial cells from the alveolæ and excretory ducts having 2 to 3 nuclei. In some cases it discharged from the excretory ducts in a flocculent mass, in which I also detected round cells of the above described character. Here and there the excretory ducts are obstructed by a caseous mass, the greater part of which is composed of contracted granular cells, about the size of blood corpuscles, densely packed together. Between these cells we also found round elements having a large nucleus and sharp contours. The mucosa of the sinus lactiferi and larger lacteal ducts are thickened. A superficial section is very compact, showing that the interstitial tissue is very much developed; here and there we find cysts, varying in size from a pea to a man's fist, which contains a caseous product. From this pulpy mass the microscope revealed small round cells with large single nuclei, and in the caseous mass shriveled pus-cells. In two cases only one gland was affected; in another both were affected in a manner described.

Prof. Virchow recommended me to examine how far the catarrhal process extended, and whether the pus-cells originated from the catarrhal inflammation of mammary gland.

In order to answer these questions, I investigated in these cases preparations which were prepared upon the method above described. I found in the interstitial tissue of the mammary gland connective tissue in a hyperplastic condition, and the connective tissue infiltrated with round granulation cells. The interlobular as well as the interalveolar connective tissues had attained a threefold thickness. The excretory ducts were varicosely dilated, and their lumen obstructed with round elements from 0.003–0.006 m.m. in size containing a single large, or several small nuclei. It is only here and there that the membrana propria is in such a high degree of proliferation that it cannot be dis-

tinguished from the interstitial tissue infiltrated and surrounded with round cells. I seldom found the excretory ducts in an early stage of catarrhal inflammation ; here the subepithelial cells (germ cells) were proliferated and stratified, so much so that the cylindrical epithelium were either between them or above them (the proliferation cells), and, therefore, removed to a far greater distance from the *membrana propria* than under normal conditions.

In the isolated epithelial cells lying between the layers of round cells, as well as in the groups of epithelial cells above the round elements, we found "trübe schwellung" (clouded swelling). The lumen of the lacteal ducts, free from catarrhal affection is often found obstructed with round elements, the origin of which is to be sought in the surrounding parts affected with catarrhal inflammation.

The alveolæ also presented different states of the catarrhal processes. In the subepithelial layer (germ stratum) we found an extensive hyperplasia, whilst the *membrana propria* was normal and distinctly perceptible.

The lumen of the alveolæ was obstructed partly by an accumulation of round cells amongst which were scattered clouded epithelial cells, and partly by fine granular epithelial cells, and by several strata of round cells forced from the *membrana propria*, in consequence of which they occupy the centre of the lumen. Seldom the reverse took place, the lumen of some alveolæ were filled with round cells, whilst the epithelium remained quite normal, and not detached from the *membrana propria* as mentioned in the above cases. The question now presented itself, what caused the accumulation of round elements (pus-cells) in the lumen of the excretory ducts and alveolæ? Virchow, Förster and Rindfleisch examined two forms of suppurative inflammation, viz., one only superficial (epithelial) in which the inflammation attacked principally the epithelial layer, the other deeper (parenchymatous) which together with the deeper tissue layers presented an inflammatory appearance, as the stratum mucosum et submucosum and so forth. Remark, Buhl and Eberth were of opinion that upon the epithelium pus-cells originated in an endogeneous manner. Cohnheim showed that blood was necessary for the formation of pus, since he proved that under certain conditions colorless blood-corpuscles exuded from the capillaries, and in this manner furnished the material for the pus.

From the above patho-anatomical changes in our cases, the pus-cells originated from the epithelial cells (germ cells) being in a state of proliferation, for we neither found changes in the *membrana propria*,

nor in the interstitial tissues surrounding it, nor in the polygonal and cylindrical gland cells, which justifies us to consider these tissues as the place of suppurative origin.

Up to the present time there has not been, as far as I know, any histological examinations of the mamma of the cow* during inflammation, and the condition of mastitis of the human subject are very little understood, as is proved by the following words of Rindfleisch :† “ The histology of mastitis is as good as unknown. We must content ourselves with the conceptions we have won from inflammatory processes on similarly constructed glands, such as the salivaries to the mammary gland, and thereby explain the various phenomena of mastitis.”

Fürstenberg, Ackermann ‡ and others have only described inflammation of the cow's mamma (mamitis) microscopically. Ackermann's opinion was that cows suffering from perlsucht was of a tuberculose nature. It is little understood that catarrh of the lacteal ducts and interstitial mastitis have nothing in common with perlsucht, and that the same does not happen to cows affected with perlsucht only as an accessory complication. The mammary gland of the cow (particularly during the period of lactation) is far more subject to inflammation than other organs, the latter, therefore, occurs extraordinarily frequent by animals free from perlsucht. We can find, therefore, no cogent reason to assign to such processes a tuberculose character. With this observation we do not dispute that a mammary gland affected with catarrh forms a fruitful ground for the development of disease in other organs from metastasis; we have already mentioned that we found in our first case lymphosarcomatose nodules in the inflamed mammary gland.

* We (as veterinary surgeons), ought to examine our cases histologically, and so be in a position to enlighten the sister profession by our investigations.

† Rindfleisch. Lehrbuch der pathologischen Gewebelehre, 1875, p. 478.

‡ Ackermann. Jahresbericht f. Jahr, 1875, p. 643.

EDITORIAL.

VETERINARY SCIENCE.

A communication from the Agricultural Department in Washington has recently been directed to many veterinarians in different parts of the country. It states that "desirous to make investigation into the causes of diseases of farm animals, statistics of symptoms, remedies and prevention in all the different classes of animals, would be kindly received at the department." The object of this information being to lay it before Congress to obtain an appropriation for such investigation. When we first read this notice, it seemed to us that there was in its spirit something which indicated that at last the Agricultural Department was becoming aware of the importance of veterinary medicine, and that the day had come when that essential branch of agriculture was about to receive its full appreciation at the hands of our honored Acting Commissioner. This, no doubt, might have been a correct impression, as, so far as we knew, it was the first time that veterinarians all over the country were called upon to give their opinion on a subject where the whole community was interested. True, Prof. Gamgee had been appointed by the general government to investigate the disease known as Texas fever, but that was a personal appointment; in no other case had a large number of veterinarians been asked to give their opinion or the result of their observation. This communication is, therefore, a fact worth noticing in the history and in the advancement of veterinary science in America.

On second thought, we asked ourselves, of what good would it be to carry on these investigations? Are not veterinarians well acquainted to-day with the history, symptoms, etiology, pathology, and treatment, curative and preventive, of most all the diseases to which our farm animals are subject? Are not pleuro-pneumonia, foot and mouth disease, anthrax, glanders, tuberculosis, etc., etc., well known to all of us? The literature of France, Germany, and of England, also, is well provided with excellent works giving upon these diseases all the scientific information which is necessary to protect us from their fatal influence, and, we repeat it, what can we gain from these investigations? Of what benefit will they be to the general public?

But let us suppose a moment that they would be useful; let us

admit that the spending of several thousand dollars would be advantageous as far as the knowledge of these diseases goes, would not the Agricultural Department find itself, probably from the start, in great difficulty, if not impossibility, in carrying out its views, from the fact of the few who by their knowledge, their education, their professional ability, or their habits, would be the proper persons fitted to carry these investigations to a satisfactory and, above all, to a beneficiary result. Veterinarians, in the true sense of the word, are only few yet in America, and we know, by European experience, that they are the ones who ought to have charge of these special studies. We know well enough that physicians do not possess by their former education the qualifications which are so essential for success, and which, on the contrary, are found in all veterinarians; and from the beginning, what might be called a Sanitary Veterinary Commission fails to be established by the want of competent workers.

Still, it is the idea, it is the meaning of the communication. Yes, we need a Sanitary Veterinary Department, with its headquarters at Washington, in the rooms of the Agricultural Department. Veterinary science has its full recognition, its full work in all the departments of agriculture, why should we be behind the European governments in benefiting of this essential branch? Let us fully impress our Acting Commissioner that he is right, that *we*, all men who have given as our life's work the duty of looking over the interests of *all*, over the *wealth of our land*, over *the health of our countrymen* by taking care of domestic animals in their state of sickness, that we all approve of his new departure, and congratulate him upon its undertaking; that we all place ourselves at his disposal and at that of his department in assisting him to form that Veterinary Sanitary Department, which in a short time he will recognize will save the country millions of dollars.

We are only few in the United States, but each of us working in our own sphere can do an immense amount of good work. Let us offer our services for the good of the country, gratuitous, if necessary, to fulfill the positions of Sanitary Veterinary Inspectors. We say gratuitous, for we may then ask from the department which will gain so much by our work, we may ask it to recognize our services, our indispensable value in the wheels of the agriculture of America by urging the establishment of a National Veterinary Institute on the same plan as those of continental Europe. Institute where all branches of veterinary medicine will be taught; where young men will learn to practice a profession so essential to every one, individually and collectively.

We have lost by diseases of swine in a year no less than \$20,000,000. Who knows how much we lose by pleuro-pneumonia, by anthrax, by glanders and farcy, by diseases of fowls, etc., etc.? Is it not time that our people should look into that fact? Is it not time that Americans should realize that veterinary science is something more than giving balls or drenches, or selling condition powders; that veterinary science is one essential branch of our wealth, as it is the science which not only cures but prevents.

Let our Acting Commissioner ask Congress for an appropriation, but not for investigations as referred to in its circular of September, 1877; not even for the establishment of a Veterinary Sanitary Department, but for the foundation, support and endowment of a large Veterinary Institute in Washington, or in proximity with some of our large cities.

Let that Institute be a true centre of veterinary education. Let our young men who are looking for an opening to a useful life, come and educate themselves in those many important departments of the profession which, one amongst all others, is so intimately connected with the social economy, trade and wealth of a nation, by the important services he may render as a physician, a surgeon, a jurisconsult, and, above all, as a sanitarian.

PHILADELPHIA VETERINARY DIPLOMA SHOP.

In one of our last numbers we called attention to the closing of the veterinary diploma mill headed by *Prof.* McClure, of Philadelphia, and most of our readers to-day know of the verdict following the trial of that person, inflicting upon him an imprisonment of nine months in the penitentiary and a fine of \$2,000. To Mr. Gadsden, of Philadelphia, the profession owes a tribute of thanks for his untiring efforts in bringing the culprit to justice, and it is a high credit to him that his whole work in this matter has been only for love of the profession to which he belongs. We present our friends in this number of the REVIEW copies of the original correspondence which took place between Robert McClure and the gentlemen who were the active agents in proving the scheme of the diploma shop also with a proof of the *diploma* itself. Those who have been unfortunate enough to buy these *worthless sheepskins*, as these credentials are called in our day, will probably, after this, see fit to remove them from their office, from the large and handsome frames where they were exhibited, and store them up in some place where they will never again see the light.

We understand that so far R. McClure has been tried on one charge only. Two or three others remain which will probably bring upon him a still more severe punishment.

TRANSLATIONS AND EXTRACTS FROM FOREIGN JOURNALS.

BY A. LIAUTARD, M. D. V. S.

RHEUMATISMAL SYNOVITIS.

In the Archives Veterinaires, Prof. Trasbot called the attention of the profession to the form of lameness often seen as complications of acute pneumonia and pleurisy of the horse—a disease which is already mentioned by Fromage de Feugré as following attacks of pleuro-pneumonia. After stating that up to the time of publishing his writings no physiological interpretations of the disease had been given, and giving the etiology as to its frequency, and relating the different cases on record, Prof. Trasbot concludes that the great differences observed in the frequency of the rheumatismal synovitis are due more to the treatment instituted to regulate the march of the pulmonary inflammation. He says: “It is indeed very rare; if one adds to the classic therapeutic of pneumonia, a mode of depurative treatment, having for object to eliminate more rapidly the products of desassimilation that Charles Robin has named *vastes* (*déchets*). Since that idea was suggested to me by a complete study of the pathological pathology of the inflammation considered generally, I have been able to collect numerous facts, all in perfect accord, and daily more and more corroborative. This year specially, as consequence of the numerous cases of pneumonia which have been treated in Alfort, I have obtained a positive demonstration of the veracity of this opinion. Out of more than sixty cases which recovered from single or double pneumonia, two only have been affected with rheumatismal synovitis at the period of the resolution of the affection, and these were precisely the only cases in which the treatment was the ordinary one put in practice in the school. In both, the pneumonia, though extensive, seemed not to be serious; the organism did not seem to be much impaired, and the march of the disease was very regular. Both would probably have recovered without treatment; they recovered in less than eight days by a depurative treatment, combined with the

local remedy of the pneumonia." After considering at some length the statements made as to the frequency of these affections after diseases of the serous membranes, the pleura or the pericardium, and examining the phenomena produced under the influence of inflammation, and the modifications of the blood, such as accumulations in the plasma of all the immediate principles of denutrition, such as urea, uric, or hippuric acid, coloring matters and salts of the bile, &c., accumulation which is in proportion to the extent of the phlegmasy, its acute condition, and the want of proper elimination. Prof. Trasbot says that "the relations established between the presence of these vastes (déchets) in the plasma of the blood, and the appearance of the rheumatismal synovitis, has had precisely for results the institution of a depurative and more efficacious treatment."

The treatment in all the recorded cases has varied much : counter irritants, blisters, setons, cauterizations, tenotomy, and having failed in many instances, he divides the therapeutic of those diseases into preventive and curative. For the first, he has had recourse to diuretics and cholagogues, bi-carbonate of soda, nitrate of potash, spirits of turpentine. For the second, he recommends the administration of diuretics also, and the application, upon the seat of the disease, of blisters and mercurial ointments. The articles are closed by the suggestion of the employ of salycilate of soda, as recommended in human medicine. —*Archives Veterinaires*, July and August.

IMMOBILITY DUE TO A SOFT FIBROMA OF THE LATERAL VENTRICLES OF CEREBRUM, WITH DILATATION OF THE RIGHT HEART, OF AN AGED HORSE.

The subject was an entire horse, about fifteen years old, which presented all the symptoms of immobility, with those of a suppurative collection in the superior and maxillary sinus—diseased condition for which he was treated by trephining of both the maxillary and frontal sinuses. The lesions of these cavities proved to be such that with them, and the fact of the animal being a *dummy*, it was decided to destroy him; this, however, not being done until both ventricles of brain had been punctured as a matter of experiment. Other troubles of the respiration and circulation had also been observed. The operation of trephining the brain gave negative results. The post-mortem revealed an emphysematous condition of the lungs, a large dilatation of the right cavities of the heart. "On opening the cranium, the meninges were found the seat of an intense con-

gestion. The arachnoid contained quite a great quantity of red serosity under its visceral layer, between the cerebral and cerebellous circulations. The piamater is gorged with blood. The whole cortical layer of the encephalic mass is strongly hyperhemic. But it is specially round the anterior extremity of the left cerebral lobe that the lesion is the most marked. There was a true inflammation, with fibrinous exudation, under the visceral arachnoid layer, and a beginning of red, muddy, wine-colored suppuration in the nervous substance. In opening the ventricles, an ovoid tumor, flatten from above, below, and entirely filling their cavities, was found. They both measured about seven centimeters in length, and two and a half in width, with nearly two in thickness. The left one was dark red by a deep vascular injection of the choroid plexus. On their surface was seen a mass of little points, of a white, nacreous color, shining and micaceous in aspect. In the right ventricle there was but a few drops of transparent serosity, while the left contained some cloudy, whitish, purulent liquid. The tissue of these tumors was firm, easily torn, and, examined under the microscope, was seen to be composed exclusively of very numerous and fine blood-vessels, with elements of conjunctive tissue. The shining spots which were found also over the surface of these tumors, prove to be crystals of cholesterine. All the other viscera, liver, spleen, kidneys, intestines, &c., were normal."—*Archives Veterinaire*, September, 1877.

DEATH FROM RUPTURE OF THE RIGHT PELVI CRURAL AND OTHER VENOUS TRUNKS.

By W. A. TAYLOR, F. R. C. V. S., Manchester.

On July 13, a bay draught horse was brought to the Infirmary, pre-spiring profusely, breathing greatly distressed, gait reeling; placed in a loose box, he immediately fell down and died. Seen about half an hour after death, the blanched appearance of the visible mucous membrane allowed a diagnosis of internal hemorrhage to be made.

The history of the case is briefly this: The horse was walking behind a burry, to which he was tied, and behind him was another horse and burry. The last-mentioned horse stumbled; his driver struck him with a whip; the horse jumped forward, and one of the shafts entered the anus of the horse in front, thus, as it were, impaling him for the instant. The injured horse struggled to free himself, and fell, and on the shaft being withdrawn from the rectum, a large quantity of blood followed in a gush, very little external hemorrhage afterwards taking

place. That external hemorrhage did not occur to any great extent, was undoubtedly owing to the action of the 'sphincter ani, which was subsequently discovered not to have been lacerated.

The post-mortem examination demonstrated that the shaft had passed in at the anus, taking an upward, oblique course to the right, and had penetrated (also obliquely) the rectum about six inches from the anal opening. From this it passed beneath the ilium, the ventral surface of which it had considerably grazed, ultimately reaching as far as the right pelvi-crural venous trunk, in which vessel there was a distinct rupture an inch in length. Shreds only of the external and internal iliacs could be found; indeed, the vicinal structures were almost reduced to a pulp. The mucous membrane of the rectum, for a few inches from the anus, was lacerated; beyond this, and the direct rupture, no injuries to the intestine were discernible. In the abdominal cavity was a great quantity of blood, in a semi-coagulated state. The viscera and vascular structures of the body were, of course, considerably blanched. There were no osseous lesions. The animal lived half an hour subsequently to the reception of the injury.—*Vet. Journal*, Sept., 1877.

DOUBLE SCROTAL HERNIA.

By R. MOORE, M. R. C. V. S., Sheffield.

The subject of this case was a valuable half bred colt, suffering with a double scrotal hernia—a very uncommon complication.

The case had alarmed both professional and unprofessional men, who thought operation impracticable. Mr. Cartledge was requested to see the colt, and undertook the operation.

As to the mode of operation it was thought the whole of the scrotum and its contents had better be enclosed by a single clam and allowed to slough. The impression was that if two clams were used, there would be a difficulty in keeping them *in situ*, also in cutting off the required extent of integument.

The colt was cast in the usual way and the bowels returned in the abdomen. The testicles were placed in position, and a strong, steel clam, fastening by a joint at one end and a screw at the other, was placed round the whole, including both cords—tunic and scrotum. Care was taken that the clam was placed as near the rings and embracing as much integument as possible. The screw was then made tight, and the colt allowed to rise.

The clam was frequently tightened by means of the screw, and was taken off at the end of a fortnight. That portion of the slough which had not separated was removed. The parts were afterwards kept clean and digestive ointment applied occasionally. During the whole of the sloughing process, the colt was evidently not much disturbed, the swelling and stiffness being trifling. He was discharged a month after the operation in all respects healthy and well.—*Veterinary Journal*, Oct.

MELANCHOLY DEATH FROM THE BITE OF A RABID DOG THREE YEARS AGO.

The following is a detailed report of a case of hydrophobia occurring *three years and three months after the bite*, and fourteen days after vaccination.

A. B., aged 21, veterinary assistant, was bitten through the centre of the right hand on the evening of May 21st, 1874. Not thinking the dog rabid, he did not apply to have the bite cauterized until mid-day on the 22d. Nitrate of silver was then freely applied, and poultices of salt and bread ordered to be continued until the wound healed by granulation. Within a few days his father telegraphed for the "Bedford remedy," and with the greatest persuasion the boy took it. He remained in perfect health until August 17th, when he complained of severe pain in the wound, which spread to the elbow, shoulder and neck. In the morning his landlady brought him a cup of coffee; and on attempting to drink he said it would choke him, and then followed a severe spasm. She sent directly for a physician, and his throat being examined appeared natural. He was ordered to get up. His father was sent for, who took him home—a distance of three miles. On the way he said the air was too much for him, and he asked his father to drive quickly. Visited that night, he received a subcutaneous injection of half a grain of morphia. Towards morning having had a dreadful night of spasms, without sleep, he was found in a severe spasm, pulse 120, breathing laborious, eyes red, skin clammy, and viscid saliva clinging to the sides of his mouth. Chloroform was administered at intervals until the afternoon, when he seemed much better, cheerful and passed two quarts of urine. When left alone, he ate a piece of cold chicken and baked apple. He had great horror of any one coming suddenly into his room, or looking at him, as it immediately produced a spasm. He was not alarmed at the house dog running into the room or barking, nor at running fluids, but he said he could not drink, or wash

himself for the world. He was sure he would die if he had another spasm. After receiving a grain of morphia under the skin to be renewed every four hours, he was left quietly pacing up and down the room. He died during a violent attack of vomiting and spasms thirty-six hours after the first symptom. He had no cerebral symptoms, and said his sufferings were beyond description, with the exception of being quite free from pain during the intervals, and under the influence of chloroform, of which he spoke highly.

Three men were bitten on the same evening by this dog. One went home without having the wound cauterized, and died within three weeks afterwards. The other two were well cauterized with nitrate of silver, followed by salt poultices. They are now at large in perfect health.—*Veterinarian*, Oct., 1877.

TRANSLATIONS.

By DR. OSLER, McGill University and Montreal Veterinary College.

ON CHANGES IN THE BRAIN IN HYDROPHOBIA.

By DR. FOREL, Privatdocent in Munich.

Prof. Benedickt, in Virchow's Archiv., 1875, p. 557, described a remarkable series of changes in the brain of a dog, and also of a man, dead of hydrophobia. These were (1) hyperœmia, hemorrhages, collections of red and white blood corpuscles in the adventitia of the vessels, and œdema of the brain substance. (2) secondary changes: miliary abscesses and granular degeneration of the brain substance in certain spots; hyaline centres involving the destruction of nerve fibres and ganglion cells; encircling of the vessels with pigment, and flakes of the same. He regarded these as produced by thrombosis of the veins, and held that they were of constant occurrence in all cases, being met with particularly in the region of the sylvian fissures, the olfactory centres, the nucleus of the motor root of the trigeminus, &c. These results were confirmed in part by the investigations of Kotesnikoff. To test the correctness of these views, Dr. Forel has examined the brain in two dogs, two horses, one ox, and a man, all dead of hydrophobia, with the following results:

(1.) In the man there was found to a remarkable degree, filling of the capillaries and veins, and in some places, accumulations of white blood corpuscles in the adventitia; nothing else abnormal.

(2.) In the two dogs, especially in the first, remarkable collections of leucocytes were seen in the adventitia of the smaller and medium sized vessels, in all the sections. Here and there the inner coats of the vessels would not be seen for the accumulations of corpuscles. This condition was well marked in the oblongata, and in the motor centre of the trigeminus. In several localities small hemorrhages were determined. No trace of abscesses of pigment flakes.

(3.) The section of the horses' brain showed a perfectly normal structure. The blood vessels were almost completely empty, and presented only a few rather doubtful traces of increase of the leucocytes in the adventitia.

(4.) In the ox nothing abnormal was found.

In normal brains of the dog and man treated by similar methods, no trace of these collections of leucocytes were found about the vessels, which establishes the pathological significance of this condition of hydrophobia, though it was not constant, and never so marked as in cases of progressive brain palsy. The small hemorrhages result from disturbances in the circulation during the paroxysms, and the same are met with after epileptic attacks. These changes occur so frequently in many acute and chronic affections—progressive paralysis, typhus, epilepsy—that they cannot be regarded as in any way pathognomonic of hydrophobia.—*Deutsche Zeitschrift für Thiermedizin. Bd. III, Hft. IV.*

THE TRICHINA EPIDEMICS OF SAXONY.

During sixteen years—from 1860 to 1875—39 trichina epidemics were observed in Saxony. The total number of cases, exclusive of light ones, which were not reported, was 1,267, and of these 19 died—1.58 per cent.

In relatively few cases was the infection produced by eating raw flesh; by far the larger number of the cases were due to the ingestion of smoked or fried sausages, 630 of the former, and about 340 of the latter. These sausages were made of chopped flesh, smoked for a few days, and then eaten cold, or fried for a few minutes. Among other sources of infection were brain sausages, thick sausages and ham. Of the 19 fatal cases, 3 had eaten raw flesh, 2 smoked, 8 fried sausages, and 2 ham. The source of infection in the other four cases was not ascertained. Of these cases, 15 were women, and only 4 men. The epidemics appeared in 22 localities; in Dresden, occurring seven times; in Leipzig, twice. In only one place did two epidemics break out with-

in four years. In 34 instances in which the origin of the trichinæ were traced, 29 were from hogs killed in butchers' establishments; the other five from animals killed for use in private families; and in these latter, fewer persons were infected, owing, probably, to the more thorough curing of the meat. The number of cases in single epidemics was, in the majority of instances, small; although the number of people partaking of the same animal must be reckoned at from 200 to 300. In some of the epidemics, the number affected reached between 100 and 200, the largest being 209, but in about half, the number was not more than 12. It appears probable that the flesh of trichinosed hogs was frequently eaten without producing the disease.

Of nearly 7,000,000 hogs slaughtered in Saxony during the 16 years, only 39 (1 : 180,000) induced trichinosis in man, though it is estimated that during this period, in addition to these, 944 affected hogs were consumed as food without producing the disease. Thus, of 100 trichinosed animals in Saxony, at the most, only 4 induced trichinosis in man—a somewhat remarkable result.—*Ibid.*

INFLUENCE OF HUNGER ON THE WEIGHT OF CATTLE.

Cattle from Galicia and Bukonina, for the Paris market, are transported by rail to Linz, without food or water; here they are put into stalls, fed and inspected. After two days they are reshipped, and four days later arrive in Paris, during which time they are neither taken from the cars nor receive food or water. On leaving Linz, they possess an average weight of 700 kilogr., and on their arrival in Paris, only 560 kilogr., thus losing, on the railway journey, 20 per cent. of their weight.

Sheep from Russia, for the Paris market, journey four days without food or drink, to Vienna, where they are stalled and fed. They are then re-shipped for Paris, being six days on the road, and fed and watered only once, either at Strassburg or Metz. On leaving Vienna, they have an average weight of 55 kilogr.; on arriving in Paris, only 45 kilogr., thus losing more than 20 per cent. of weight by the way.—*Ibid.*

AMERICAN VETERINARY COLLEGE.

OPENING.

The 3d of October at this institution was a gala day. The lecture room was filled to its utmost by members of the profession, students, and a few friends of the veterinary medicine. At 4 o'clock P. M., Prof. Veisse, as Secretary of the Board of Trustees, opened the exercises by giving the history of the College. After stating how, through legal difficulties in the School where the faculty had successfully been engaged for 10 years, it had found it necessary to resign from the institution they had, properly speaking, raised to the position of an honored and respected college, and how satisfied of the results which had rewarded their efforts, the Professors had found themselves able to have a Board of Trustees duly organized, and how a legal character was obtained under the General Law of the State of New York—law under which other medical institutions were also organized, Prof. Veisse gave the gentlemen at present about entering the Class of 1877-78, the satisfactory proof of the legal power of the College to grant diplomas, as given to the College by its charter.

Dr. Liautard followed the remarks of Prof. Veisse, in giving the audience the schedule of the duties and of the requirements of the veterinarians. After showing how the veterinary surgeon had not only duties which called him upon the task of attending animals in disease, or to restore them while disabled by external injuries, the doctor insisted upon the duties of the practitioner as a sanitarian and veterinary jurisconsult. And thus having divided these as the requirements of educated veterinarians, a description of curriculum and of the lectures upon these different subjects was laid before the class, with the closing announcement that the examination of candidates for matriculation was to take place on the next morning at 9 o'clock. Prof. Arnold, M. D., and Prof. Whitauss, M. D., of the Medical Department of the University of New York City, being appointed Examiners.

At the time of going to press, thirteen students have been examined, two of them being unsuccessful; the class numbers a much larger number than last year, and amongst them are found two, sent by the Agricultural Societies of New Jersey and Michigan, to fill up the free scholarship offered by the Faculty.

CORRESPONDENCE.

[Copy.]

PHILADELPHIA, April 9th, 1877.

DR. McCLURE :

SIR : As I cannot find you at your office in the evening will you inform me if I pass a good examination before you on veterinary surgery and medicine, will you give me a diploma if I pay you \$100 at once. I know all about the business, but I want a Philadelphia or Pennsylvania diploma—which is it called?—that you grant. I want it to practice in Iowa as soon as I can get away. A friend of ours at Lancaster got his of you I am told. He makes out it cost him much more. I cannot pay any more than I state for one; would rather go without one.

Yours respectfully,

J. WESLEY.

[Copy of McClure's Answer.]

903 FILBERT ST.,
PHILADELPHIA, April 11, 1877. }

DEAR SIR :

Yours of the 9th is to hand, and would say that for you to drop me a note or p. card on what day you will call on me, as I live on my "*farm*." Call from 10 o'clock, A.M., to 2, P.M., on any day, and the Board of Directors will grant unto you the Philadelphia diploma in from three days to one week, and if you say that you know all about the business and that you have a copy of my book entitled "Disease of the American Horse, Cattle and Sheep," by myself, then a diploma will be granted to you *without* examination; and if it is satisfactory to you, *copy* the enclosed and sign it, and send it along with post office order for the money, and the diploma, enclosed in a fine, black walnut frame, all ready to hang up in your office, will be sent to you by express or otherwise in a few days.

I am, etc.,

R. McCLURE, M. D. V. S.

PHILADELPHIA, April , 1877.

TO DR. McCLURE :

Enclosed find post office order, one hundred dollars, for matriculation and graduation fee of the Philadelphia Veterinary College.

J. WESLEY.

[Copy, posted in Iowa.]

DYERSVILLE, IOWA, April 18th, 1877.

DR. MCCLURE, Philadelphia :

SIR : I understand, from a friend in your city at the present time, but from our State, that you grant diplomas from the Philadelphia Veterinary College to men who know their business, and the proper use to make of them, and that he means to bring one home with him. Will you let me know how much money I am to send you for one, and how many veterinary surgeons' names will be signed to it ; also, if they will be well known men as veterinary surgeons.

As Dyersville contains a great many English people, well off, could you get a member of the English Veterinary College to sign it ; that would make it worth more money to me. Let me know, by return of post, the price, as I want to get one by the time my friend gets back.

Yours, with respect,

DANIEL UNDERWOOD.

[Copy of answer received from Iowa.]

903 FILBERT ST., PHILADELPHIA, }
April 20th, 1877. }

DEAR SIR : Your letter of the 18th inst. is at hand. Mr. J. Wesley, of your State, is now here, studying and reading the first book of the College, and will receive its diploma in a few days. I suppose he has told you the great object we have in mind in granting diploma degrees. Dr. J. Wesley, M. P. C. V. S. ; three well known vets. sign ; one, Mr. Gould, is an Englishman ; one gentleman, the President, is an M. D. besides myself, who is known over the world, being the author of 4 vols on the great subjects of veterinary science. Three of those books will be sent to you along with the diploma, by express, in 3 days after receipt of the following paper from you :

DYERSVILLE, IOWA, April 1877.

DR. MCCLURE :

DEAR SIR : Please find post-office order for \$135, fees for matriculation and graduation for the session of 1876-7, in the Veterinary College of Philadelphia.

D. UNDERWOOD.

This entitles you to the degree, Dr. Daniel Underwood, M. P. C. V. S. These letters differ only from the English by R., from Edinburg by E., Glasgow by G., from Dublin by a D.

I am, etc.,

R. MCCLURE, M. D. V. S.

TO DANIEL UNDERWOOD, V. S.

[Copy of "Bogus Diploma," found on Robert McClure when arrested.]

Ars Veterinaria Post Medicinam Secunda Est.

VETERINARY COLLEGE OF PHILADELPHIA.

(Coat of Arms, State of Pennsylvania.)

To all whom it may concern :

KNOW YE, That we, the Officers and Professors of the Veterinary College of Philadelphia, do, by the authority vested in us by the sovereign power of the State of Pennsylvania, confer the degree of Doctor of Veterinary Medicine and Surgery, with all the attending immunities consequent thereto, upon

J. WESLEY,

He having attended the curriculum of studies, and complied with all the requirements imposed by the laws of our Institution. And we hereby certify his entire ability to treat, in a scientific manner, all kinds of diseases peculiar to Veterinary practice.

In testimony whereof, we have granted him this

DIPLOMA,

On this first day of March, Anno Domini 1877, in the Hall of our College, at Philadelphia, affixing our signatures, and the seal of the College thereto.

ALFRED L. ELWYN, M.D., *President.*
GEO. W. CLOSS, V.S., *Secretary.*



ROBERT MCCLURE, M.D.V.S.
JNO. H. GOULD, V.S.

REPORT OF CASES.

PUNCTURED WOUND OF THE CHEST—DEATH.

TO THE EDITOR OF THE VETERINARY REVIEW :

SIR : I was called, on the morning of September 7, to see a very fine young mare, the property of Mr. Briggs, seedsman, of this city, which had received what proved to be a fatal injury. The animal was being driven by Mr. Briggs, on passing over a small culvert, the animal broke through, and made a plunge forward, but recovered herself almost at once. Mr. Briggs, fearing she might be injured, got out and examined her; the night being dark, he lit several matches, but only found a slight injury to the knee, not thinking that at all serious; got into his buggy and drove home, a distance of three miles, and says his mare came along as lively as ever; on arriving home she was unhitched as usual; on raising her foot to step into the stable, she was noticed to show pain by moaning; a light was brought, and a close examination made, and it was soon found that the poor mare was very seriously injured. A large wound was found in the pectoral muscles between the sternum and arm of the right fore leg. Becoming alarmed at this, Dr. Tegg was sent for; he made an examination of the wound, but found nothing in it; he stitched and dressed the wound, but before leaving her for the night, he was looking her over, and just behind the elbow he found a hard ridge like a man's arm; he concluded there was some foreign body there; on making an incision through the skin and muscles, he found a large piece of plank; on being measured, it was found to be twenty inches long, three inches wide at the large end. After removing the stick, the opening was closed, and a bandage put on to keep the air out, Dr. Tegg gave his opinion that she could not live. I was called in the following morning. I found her standing, but was in great agony and appeared to be sinking fast. The whole right side was completely filled with air, and on being tapped with the fingers sounded almost like a drum. I told the owner she could not live, but he was anxious I should do something. I ordered her to get port wine every hour, which revived her for a time, but death closed the scene about nine o'clock in the evening, just twenty-four hours after the accident.

Dr. Tegg and myself held a post-mortem the following morning, and found that the stick had entered the pectoral muscles, passed up-

ward and backward until it reached the seventh rib which it struck and broke, passing into the thorax just below the lung, went through the diaphragm, and into the intestines about five or six inches. I report this case to show what great suffering this poor animal must have endured, still at the same time drawing her master and his friend home, a distance of three miles, as faithfully as ever.

A. DRINKWATER, V. S., Ont.

ROCHESTER, October 18, 1877.

REGULAR GRADUATES OF THE VETERINARY DEPARTMENT OF
THE HIGHLAND AND AGRICULTURAL SOCIETY, EDINBURGH.

James Booth.....	1870
James A. Going.....	1868
James Hume.....	1853
William Keith.....	1858
Thomas Shea.....	1859
Andrew Smith.....	1861
John Turnbull.....	1862

EXCHANGES.



Hospital Gazette and Archives of Clinical Surgery, N. Y.; Scientific Farmer, Boston; Country Gentleman, Albany; American Agriculturist, N. Y.; Scientific American, N. Y.; Medical Record, N. Y.; Journal de l'Agriculture, Paris; Live Stock Journal, Chicago.

COMMUNICATIONS RECEIVED.



John Myers, Sr., Cincinnati, Ohio; A. A. Holcombe, N. Y.; W. Gadsden, Philadelphia; A. Drinkwater, Rochester; Prof. McEachran, Montreal.

AMERICAN VETERINARY REVIEW,

DECEMBER, 1877.

ORIGINAL ARTICLES.

THE CASTRATION OF COWS.

By C. SCHMIDT, District Veterinarian, Hofgeismar, Germany.

From the German, by F. S. BILLINGS.

Original to be found in Archiv. fur Thierheilkunde, Berlin, Vol. 2, 1876.

I have been long in debate whether to give a complete translation of the above or not, but upon undertaking to make a review of the same, there seemed so little that could well be left out, that I felt obliged to give the whole, even at the cost of valuable time. The importance of the question is self-evident.

The operation of ovariectomy was mentioned in the 16th century by Bartholini, as being performed in Denmark, with the aim of a quicker or more complete fattening of the animals, and it was also in vogue with the same end in view about the middle of the 18th century (Britz) in Saxony, and towards the end of the same in Sweden (Retzius). According to Viborg, it was also known in Jutland about the same time; it then passed into forgetfulness for a long time, until 1830, when it was again introduced to public notice, and much lauded, as occasioning a greater yield of milk per diem, by Wynn, an American; by Levrat, of Lausanne; Regène, of Bordeaux, and Marin, of Laugonet, who found many supporters. The operation was also frequently performed in Schwabia about this time, with the idea that the animals became more rapidly and completely fattened, and that the flesh was more delicate. Old castrated cows were known as "Queens."

From this time until 1850 the operation was now and again performed, the aim of the operation being as mentioned, a greater yield of

milk, better fattening, and a supposed improvement in the quality of the flesh, and to the curing of aedaeomania. First, after Charlier, of Rheims, in 1850, had taught the manner of operation by vaginotomia, and practically shown the rationality of the same, and described in most glowing colors its favorable influence upon lactation, people began upon all sides to speak of its perfect safety and many advantages. It was the same by this as by all new things. Actual investigations, and the careful estimation of the facts derived therefrom, produced doubts of the correctness of Charlier's and others' praises, especially in regard to the milk production. The enthusiasm of owners and veterinarians was cooled by an occasional loss of an animal from the operation, and the operation again passed into forgetfulness so far as milk production and flesh fabrication was concerned, so that it was seldom spoken of during the sixtieth decennium. It was discussed at the meeting of Veterinary Union of Schwabia and Neuberg, in 1874 (Adam Wochenschrift, 1874.) It was universally decided that it was only to be recommended as a surgical interference in case of aedaeomania, a view with which I exactly agree. It often happens, however, that an occasional owner becomes enthusiastic by reading over some article upon the subject written at the above-mentioned periods, and declares himself favorable to further investigation; and so opportunity was offered me in the fall of 1874 and early months of 1875, to perform the operation upon quite a number of animals, which gave me ample material to draw justifiable conclusions of the value of the operation.

Before giving the obtained results we must touch the following questions: 1. What do we intend to attain by castration? 2. In what manner can we best perform the operation? 3. What are the exact results?

If, in the beginning, it was the intention only to make the female analagous to the male animal, and make them by castration more capable of fattening, it was not long before people began to think they had found a means in the same by which the quantity of milk secreted would be greater for several years after the operation; even the daily quantity of milk was supposed to be greater, and the castrated animals were at the same time expected to fatten nicely. These were the wishes of the owner of the animals in question, as he would not be troubled with breeding calves—a guaranteed milk machine for a number of years. If the castration answered this expectation we shall see later on.

Nymphomania gives another occasion to the operation, as known, a constant sexual excitement, by which the animal in question finally

becomes emaciated to a skeleton, is conditioned by different neoplasia of the ovaries, as tubercles, sarcoma, carcinoma, and, above all, cystoma, further through hydrops of the folliculi graafiana. (NOTE.—The cystoma ovarii is a cystic formation of the ovaries, through proliferation of the germinal epitheleim forming accumulations of cells, which penetrate into the stroma of the same and secrete. The secrete accumulates within the cellular accumulations and forms the cysts, which, when lying in opposition, form a tumor—cystoma. Later, the cysts become confluent and form hydrops ovarii multilocularis. Hydrops folliculorum ovarii owes its genesis to an accumulation of an albuminous fluid in a folliculus graafiana. This latter form is caused through irritation, and might be called catarrh of the graafian follicle.) With the removal of the ovaries, that is, the removal of the cause, the disease is healed, and only, by tuberculous ovaries, is the result of the operation negative, as this is but participatory condition of a general dyscoursia. I can but recommend the operation in all cases of developed nymphomania, as at present no other method of healing the condition is at our command. Of four cows operated upon by me in the last year, three recovered at once, while the fourth was killed in course of time on account of tuberculosis.

What is the most conformable manner of operation? This question renders it necessary to pass in review the various modifications of the same. All methods are united in that the operation of ovariectomy must be performed either from the flank or from the vagina. The first form, that of the flank operation, cannot be passed by by young animals, in that the vaginal canal is too narrow to allow vaginotomy. The method consists in first securing the animal, and then clipping the hair upon the place of operation, and in then making a section through the cutis, subcutis, musculature and peritoneum, reaching with the hand into the cavum abdominis, in order to separate the ovaries from their ligaments, and remove them. The separation of the ovaries can be performed either with the finger nails or with the ovariectomy forceps. The wound is to be closed lege retis. If cattle do in general bear such surgical manipulations, yet cases enough have come to pass which have ended fatally. Peritonitis, with a quantitative exudation, was in general the causa mortis. It was but natural that operators should address themselves to the much-praised method of Charlier, and seek its improvement. The method was soon much simplified, and the costly instruments of C. replaced by simpler and cheaper. The topographical anatomy of the parts in question is as follows: The vagina of the cow

is from 30 to 35 ctm. (12 to 14 inches) long, according to the size of the animal; it embraces anteriorly the cervix uteri with the orificium uteri externum, and is on the anterior end outwardly embraced by the peritoneum, which is easily to be separated from the muscularis. Superior to the vagina is the rectum, which is at once drawn upward by the operation of vaginotomy (nervous action), and antero-inferiorly to the rectum the vesica urinaria is situated; the ovaries are situated laterally to the uterus, somewhat lower than the latter, are bound to the cornua of same by their ligaments and the tubae fallopianae, and enclosed in a duplicature of the peritoneum, otherwise free; they are more flat than round, and vary in size from that of a bean to a walnut, or even larger; their arteries, branches of the aa spermatica intera, have a very irregular course, and this is probably the reason that hemorrhage is so easily stilled after operation, though thrombosis and a violent hemorrhage is a thing of seldom occurrence. The vaginal mucosa has many rugae, and reacts very quickly against the influence of instreaming air. It distends itself very quickly, and makes the formation of a fold impossible for a short time.

One of the modifications which Charlier's method soon suffered was in regard to vaginotomy. While Charlier, Werner, Colin performed the same after previously distending the vagina in a vertical direction, the brothers Richter proposed another way: they formed a simple transverse fold in the superior parietes of the vagina, punctured the same at its basis, and cut downwards. The undeniable advantage of this method is, aside from the much cheaper instruments required, that we have only to enter the vagina *once* with the *left hand* in order to entirely complete the operation, while by Charlier's method the section is made with the right hand, and the withdrawal of the ovaries effected with the left hand. Manipulations, which not only require much time, but also allow the entrance of more air than is proper into the cavum abdominis. J. Richter introduced into use a knee-scissors for cutting through the folds made in the vaginal parietes, which, however, found but little adoption, in that it was not always certain to make the cut at once, and led to laceration of the wound. All operators are united in making the operation 3 to 4 ctm. ($\frac{3}{4}$ to $1\frac{1}{2}$ inches) from the orificium uteri externum, and in the medium line of the superior vaginal parietes, and that it is an unpleasant circumstance when the peritoneum is not concomitantly sectioned. In the last case several operators recommend the perforation of the same with the fingers; but this is seldom successful, and has for a consequence the formation of sinus, by the separation

of the peritoneum from the muscularis, by which the operation is made unnecessarily difficult. The better and simpler way is to fasten the same between the thumb and first finger, and to draw the same into the wound, and there separate it; the cut can easily be distended by the fingers in case it is not long enough. If the cut is made too far backwards, or laterally, we find ourselves outside the vaginal peritoneum; and sinus formation in the subserous connective tissue is a very unpleasant consequence, which comes from endeavoring to puncture the peritoneum with fingers. Aside from this, if we succeed in puncturing the latter with the fingers we are not able to reach the ovaries until the entire hand is through. The hemorrhage from the vaginal wound is insignificant, and when the cut is made in the proper locality, takes place into the vagina, and not, as Putz says, into the *cavum pelvis*.

The second operative act is the same by all operators, and consists in seeking for and withdrawal of the ovaries into the vagina by means of the first and second fingers of the left hand. Pathological conditions of the ovaries render this process difficult, and care must be taken with ovaries complicated with large cystoma, whose parietes are very thin, or with such having large corpora lutea, in that we must not rupture the first or press the latter out, which would lead to a loss of the ovary, perhaps, and require a second search. I fortunately met with no such case, however.

The last act of the operation is the extirpation of the ovaries, with or without torsion, and in the first case again with or without section of the *ligamenta ovarii*. Charlier recommends cutting the ligament upon both sides, then fixing the balance with the fingers, and separating the ovaries with the ovariectomy forceps per torsion. Richter and others cut into the ligament upon one side, and fix the balance with forceps which are bent at almost a right angle, separating the ovary per torsion with the hand. Colin used clamps, and proceeded in like manner. Basse, in St. Petersburg, used the *ecraseur*, and praised it very much. Others did not like this method. Putz separated the ovaries in twenty cases by simple section (without torsion), and I have also in many more without any disadvantageous consequences, although in one case I could feel the pulsating blood stream against my hand. I changed this treatment and fixed the *ligamenta ovarii* with the powerful forceps of Richter, and separated the ovaries by others resembling the ovariectomy forceps of Charlier. I did this in order to see if the blood which gained access to the *cavum abdominis* by the simple section of the ligament was not the cause of the constantly present *erethitic fever* and the long continued

quantitative decrease of the milk. In forthcoming cases I shall unconditionally follow the above method of Putz, as my suspicion proved itself unfounded, and the method being the simplest of all, giving smooth traumatic surface and being the easiest of execution. I was not successful in fixing the ligamenta with the hands in any case without previously cutting into them laterally. The torsion with the forceps has the disadvantage that severe disturbances with fatal endings can easily take place, and the cutting of the ligaments has convinced me that this is the best method. The forceps of Richter are too short to operate advantageously. They do not correspond to the length of the vagina, and favor thereby the entrance of air. The torsion forceps are, also, too weak, and not capable of offering resistance enough to the strong ligaments, thereby retarding the torsion. The straight bistoury with a leather cup is disadvantageous, in that the operator easily injures the balls of his hands in the removal of the same, and the retention of the same in the hand after baring the blade renders the holding of the transverse fold with fingers difficult. I used a bistoury-caché, 35 ctm. long (14 inches.) With the latter and Richter's forceps the operation is very easy, and surely and rapidly performed in the following manner: The animal should be bound short; three or four assistants should be at hand, one to hold the head, another to stand at the side in order to obviate lateral movements as well as arching of the back during the operation; the third should hold the tail to one side and attend with the instrument. The operator should moisten his hands and arms with warm water (oil is not conformable, rendering the holding of the transverse fold and instrument difficult), and introduce them (the left hand and arm) into the vagina; he then forms a transverse fold in the superior vaginal parietes in the median line of the vagina, and immediately posterior to the orificium uteri ex., and draws the fold downwards; the thumb, first and second finger are to be used to form the fold. The operator then enters the withdrawn bistoury, following along the left arm, places the anterior end upon the thumb and against the posterior surface of the transverse fold; he then pushes the blade of the bistoury out by means of the button at its posterior end, with the thumb of the right hand, the fold being concomitantly punctured at its basis; the operator holding the fold firmly with left hand, he then uses the first and second fingers, passes them over the bistoury and presses it directly downwards, or presses the fold upwards, at the same time drawing the blade downwards and cutting at the same time. Is the vaginotomy successful, of which we can easily convince ourselves, with a finger of the left hand,

the operator withdraws first the blade of the bistoury, and then the latter. In case the peritoneum remains intact, the operator must attach it with thumb and first finger, drawing it into the wound and puncturing it with the bistoury; the cut is easily sufficiently extended with the finger. I do not recommend the puncturing the peritoneum with finger, as is occasionally recommended, as it easily leads to the separation of the peritoneum from the muscularis, and formation of sinus, which make the operation much more difficult. The ovaries are then to be sought laterally to the uterus with the first and second fingers, and in general first the left and then the right ovarium drawn into the vagina, and then with scissors separated from the ligaments close to the ovaries, or the attachment forceps may be used instead of the scissors. They must not be placed too near the ovary; they must be closely pressed together with the thumb and first finger; the ovary can then be separated by 3–6 torsions of the ovariectomy forceps. The entrance of air is impossible to avoid, however carefully we compress the vulvae, but does not seem to exert any consequential harmful influence. The entire operation can be completed in three or four minutes. In regard to the formation of the transverse fold, this is always impossible if the vagina becomes distended; a delay of perhaps ten minutes is caused thereby.

The consequential phenomena following the operation are at first those of pain, the animals neglect their food and drink for one or two meals, lay down, extend the head and neck, gaze round at the abdomen, arch the back, and are sometimes meteorismically distended in proportion to the quantity of air which gained access to the C. abdominis during the operation. The meteorismus again vanishes in the course of 12 or 18 hours, followed by the phenomena of a light inflammatory fever. Although the appetite may now return, and the rations be completely consumed; although slowly the temperature of the rectum appears to ascend from 30–30.3 R. (99.5–100 F.), of healthy animals, to 31–31.4 R. (101.75 or 102.6 F.), and by all castrated animals appears to remain stationary for almost four weeks, insignificant variations not considered. Violent disease phenomena may be expected if the temperature rise to more than 32 R. (104 F.), with concomitant sinking of the milk secretion during the first days succeeding the operation. Several cases of this kind, where the milk secretion was almost checked and the temperature increased to 32.2° R. on the second day succeeding the operation, died of peritonitis, or in consequence of abscess formation, while others which demonstrated like phenomena as regards the

milk secretion, but by which the temperature did not rise above 31° or 32° R., recovered with moderate celerity.

I especially recommend the thermometric, in unison with careful quantitative observations of the milk secretion, as the means by which we are enabled to warn owners and prevent unnecessary loss on the animals by timely slaughtering of the same. I also sought to reduce the temperature of the wounded parts by means of cold aqueous clysters in the rectum. It sank in the vagina about 1° R. for a quarter of an hour, but soon attained its former altitude. It must be left undecided if the continuance of this treatment three times a day for eight days was the cause of the more favorable course. I paid little attention to the pulse, as I must admit I place but little dependence in these phenomena in cattle disease. I found the vaginal wound closed by many animals per prim. inten. on the third or fourth day, without tumefaction in the vicinity, only by a few did it heal per sec. inten., and then the pus flowed out the vulvae for a short period.

A further unpleasant consequential casualty by ovariectomy is the formation of abscesses in the c. pelvis, and probably on the place where the ovary was separated from the ligament per torsion. I observed this twice by my cases. Once the abscess limited on the vaginal parietes was opened and emptied; the other it was impossible to empty, and the case ended fatally. Animals which appear unwell some time after the operation, and which appear to be daily failing, should always be investigated for such abscesses in order that assistance may be rendered if possible. Although many authorities speak of the operation as being free from danger (Pflug considering the danger = 0), and further that complete health and their previous lactation condition, with few exceptions, return in five or six days, I cannot agree with them, and must emphatically contradict the assertion. Although the patient may outwardly appear healthy, the long continued increased temperature and a review of the milk table, also the loss in weight, prove only too emphatically that convalescence may continue weeks; yes, even months. I at first attributed this slowness in convalescence and the other phenomena to resorption of the hemorrhagic elements, accompanied by a very mild peritonitis, but was obliged to discard this assumption, as the conditions were the same when the ovariectomy was performed per torsion. A partial peritonitis upon the locus operationis may be the occasional movement. If this fact has been overlooked by the operators in question, so must the reason therefore be that they have only given their attention to the outward phenomena of the or-

ganisms in question, and neglected to make regular statistical records of the milk quantum. I do not consider the operation as one entirely free from danger; we can always reckon on a loss of five or more per cent. A simple peritonitis, which *may* always follow such surgical interferences, may lead to fatal conclusions. Charlier reports a much smaller per cent. than the above. I doubt, however, if he gave to us the entire truth.

Is the operation advantageous in an economical point of view? In so far as we have the removal of nymphominia in view, the answer can be emphatically "Yes," as this is the only therapeutic means of value at our disposal. The question has another color when made in relation to quantiture of milk and flesh production. In order to give these questions a trustworthy answer, the investigations must have a genuine basis; it is not alone sufficient that the milk quantum is daily measured, but the food of the animal for a time previous to, and during the investigation, must be daily *weighed* (not measured), and contain a certain quantum of protein, hydrocarbon, etc. If this is not the case, the reported favorable results from the operation are valueless. Again, all animals devoted to the operation must be in the highest lactation period. All these momenta seem to be entirely overlooked by previous experimenters—at least I can find nothing of the kind reported in the literature at my command—and it was entirely natural that observers should have most varying results.

By my experiments in the years 1874–75, with 21 cows, all the necessary conditions were filled, to give the necessary reliability to the results. Not only was the material offered me all I could desire, the rations were also accurately measured before and after the operation; for each 1,000 lbs. (live weight), was allowed 25 lbs. dry feed, 2.5 nitrogenous, and 13.5 nitrogen free substances, per day; the milk quantum from each cow was exactly measured three times a day. This procedure was strictly adhered to, to the close of the experiment. Those animals destined to fatten received a correspondingly exact ration. The temperature of the stable varied between 12 and 14° R. (59 to 62.5 F.) The effects of the castration were the following:

a. With regard to fattening ability. The weights were taken always in the morning, and every eighth day, the results were a loss in the first eight days of from 30–75 kilog. (1 kilo. 2 lbs. 8 oz., Troy,) in the following week a gradual gain was noticeable (by No. 1, the minus after 5 weeks was 70 kilo.; by No. 3, 25 kilo.; by No. 4, 67 kilo.; by No. 6, 60 kilo., and the status quo ante was not obtained for a period of from 4 to 6

weeks, or more. From this period the castrated cows held their own with the non-castrated, and when devoted to fattening, they fattened well, but in no way better than the non-castrated. These observations exactly correspond with those I made in the 60th decen, and if they stand opposed to the communications of other observers, it appears to me as if they credited to the operation what should be credited to the feeding account. I also took especial pains to satisfy myself with regard to the flesh, qualitively, and found that the flesh of the castrated in no way excelled that of the non-castrated, but I will remark that the animals had in both cases attained considerable age. We often find it reported that the flesh of castrated cows resembled that of young oxen, and the laying on of fat was very remarkable, again very insignificant, results which it would appear are very dependent upon the age of the animals in question. The influence which castration exerts upon male animals in regard to fattening and flesh quality, is decidedly not the case by females.

b. With regard to the secretion of milk. If we study the milk table, we observe that by all the castrated animals a more or less important minus in the milk quantum took place for a long time—by some it continued forever, then for some months it equaled or approximated the yield previous to the operation, and finally it frequently happened that a rapid decrease in the quantum took place. Only a few of the animals, Nos. 2, 3, 5, 13, 15 and 21, show an increase for a short time. If the assertions of Charlier and others, that the castrated animals continue for a year or more to give the same quantum of milk that they had given at the time of castration, is an exaggeration, yes, as decidedly false. Proof—the milk table. Yet we cannot deny that the castration is not without influence by different animals in this regard, the lactation period is lengthened. It is a rarity that good animals give great quantities of milk for more than 10 or 12 months at a time, yet the influences of castration are so insignificant in this regard, that the plus in milk scarcely covers the decrease which was consequential on the operation, to say nothing of the cost of the operation, the casualties which *may* occur—that it does not give much encouragement to the popularity of the operation. The milk is qualitively affected by the operation, as Ercolini and Marchand have asserted, and Dr. Dietrich has shown by analysis of the milk from the animals I castrated, that the fat and casein elements were increased, but for this small advantage no thinking breeder or owner would think of assuming the other risks of the operation.

In accordance with the above facts, I must say, that "*the castration of the cow is a useless, and in an economical point of view, a disadvantageous operation, in so far as it has relation to the lacteal secretion or fattening qualities, and deserves, once for all, to be driven out of existence.*"

PERIOSTITIS.

BY A. A. HOLCOMBE, D. V. S., N. Y.

[Continued from Page 196.]

Inflammation of the periosteum as a complication of quarter-crack is but occasionally met with in practice, yet it may occur at any time, and is important in its bearing upon the course of treatment to be pursued in consequence of the complication, as well as interesting to the profession because of the absence of any mention of this condition in the text books upon veterinary surgery. That periostitis of a severe character, with even caries of the os pedis, should exist in rare cases of quarter-crack, and yet never receive the recognition of our authors, indicates the imperfection of our English veterinary literature. Although a detection of its presence in the past may not have mattered so much as to the subsequent treatment and ultimate results, its early detection and proper treatment in the light of recent days, when so many rapid trotters are prone to spring quarter-cracks on account of the character of their work, especially when carrying toe-weights, becomes of great importance, both to the Veterinarian and his employer. As a complication of toe-crack, it is very often seen, and is due to the same causes, runs the same course, and demands the same treatment as in quarter-crack. It is in those cases of quarter-crack that have existed for a lengthened period of time, and where the wound is long and deep, that the continued irritation and inflammation of the soft tissues spreads to the periosteum beneath, and a circumscribed periostitis results.

Except in rare cases, the inflammatory action is limited to the external layer of the periosteum, and where suppuration follows, it is found between the two layers. This inflammation is generally of a chronic character, and is maintained solely by the irritation and inflammation of the surrounding tissues, which, in their turn, are kept constantly irritated by the presence of foreign substances coming through the opening in the wall of the foot, and by the pressure from the edges of the wounded horn.

If the inflammation is long continued, and especially if the animal is made to work, the deeper layer of the periosteum may become involved; in this instance there is superficial inflammation of the bone substance, and the products of the inflammatory action is thrown out upon the surface of the bone, detaching the periosteum, and by cutting off nutrition, induces a limited caries. The consequent suppuration still further separates and destroys the periosteum until this membrane is ruptured, and the pus is discharged through the cleft in the horn.

SYMPTOMS AND COURSE.

Since quarter-crack is seen in all classes of horses, although it is perhaps most commonly met with in those used for fast work, the complication above spoken of may also be seen in all classes—but not so with toe-crack, for it is of rare occurrence, except in animals of the heavier breeds, and used for slow and heavy work. Again, while toe-crack will be seen on the hind feet as well as the fore ones, quarter-crack seldom or never occurs behind. The presence of periostitis where either toe or quarter crack exists, will be detected by the character of the lameness, the soreness evinced upon pressure to the parts, and by the suppuration. Where permanent lameness accompanies either of these injuries to the wall of the foot, I very much doubt if it is ever due to any cause other than periostitis. In quarter-crack with periostitis, the foot is rested at every opportunity, and every step is accompanied with lameness. There is more or less heat around the coronet upon the inner side, while pressure upon the edges of the wound causes flinching, and tapping the wall with a hammer causes extreme pain.

Regarding the suppuration, it may exist to a very limited extent, even without any periostitis whatever; but in these cases the lameness is entirely absent, or at most shows itself slightly while the animal is working, and subsides with a little rest. Where the inflammation of the periosteum has ended in suppuration, the quantity discharged is more or less extensive and continued, while if caries exists the peculiar smell of diseased bone will indicate its presence.

The tendency in the majority of these cases of periostitis, if left to themselves, is always to caries, and, as a consequence, demands the interference of the surgeon. If, on the other hand, the patient is given rest, and foreign substances prevented from entering the wound, the inflammation will subside, the suppuration cease, and the wound heal, providing it is placed in a favorable condition.

The caries accompanying these two diseased conditions is never extensive, exists more often in toe-crack, and is very amenable to treatment.

ANATOMY OF REGIONS.

Translated from Peuch and Toussaint's, Précis de Chirurgie Vétérinaire.

BY A. LIAUTARD, M. D. V. S.

[Continued from Page 230.]

SECTION II.—TEMPORAL REGION.

This is a very natural region, which writers on the external form of the domestic animals have mixed up, without reason, with the frontal region, while they have called the *temples* the bony projection corresponding to the temporo-maxillar articulation.

For us the temporal region corresponds to the temporal fossa ; it is then situated on the sides of the cranian portion, between the anterior and the lateral faces of the head, bound inward by the parietal crest, forward by the orbite, outward by the zygomatic process, and extending backwards to the pole ; the concha seems to rise from its external and posterior portion.

The temporal region is convex from side to side and slightly from forward backward ; it projects over the frontal region, and this more so as the muscles are more developed. In those animals where the muscular system is emaciated, a flat part takes the place of the prominence ; it presents then forward a depression more or less marked, especially in old animals, hence the name of *hollows* of the eye, given to it by old writers. The skin is fine and loose, especially inwards and behind the ear. Under it we find a first muscular layer, agent of motion of the concha. The muscles which compose it are attached partly to the scutiform cartilage, a cartilaginous piece situated in front of the ear and easily defined under the skin. These muscles are—the zygomatico-auricularis*, the external temporo auricularis†, and the external scuto auricularis‡.

Other muscles belonging to the ear, also—the internal scuto§ and temporo auricularis||, situated under the former—form another thin layer.

The fourth plane is constituted by the crotaphite, very strong muscle, filling up all the temporal fossa, attached upon the whole extent of that fossa and upon the coronoid process of the inferior maxillary.

* Attolens anterior.—Percival.
§ Posterior conchæ.—P.

† Attolens maximus.—P.
|| Attolens posterior.—P.

‡ Anterior conchæ.—P.

It is one of the principal means of closing the jaws. Its fibres, covered by a handsome and strong nacreous aponeurosis, do not reach the posterior border of the orbital process of the frontal; they have between them and the bone an empty space, partly filled by a thick adipous cushion, even in the leanest animal, which is easily displaced by the coronoid process during the motions of mastication.

The base of the region is formed by the temporal bone, the parietal and the frontal. These bones are not very thick, and without sinuses.

Blood vessels.—Only arteries of small size are found in that region. They are divisions of the temporal and anterior auricular arteries. The nerves are furnished by the anterior auricular, and the temporal.

Differences.—The temporal region of the *ox* is found altogether upon the side of the head; it looks as if covered by the frontal, and extends backwards to the horn. Well defined in the temporal fossa, this region presents only one small crotaphite muscle; it is not covered by the zygomatico auricularis muscle, which is missing in those animals. In smaller species of animals the region extends a little more forward.

In *carnivorous* it is quite developed, and the size of the muscles which belong to it is so great that the two regions unite together on the median line and form alone nearly the half of the anterior and lateral faces of the head.

The temporal region of the *pig* is also very large. It holds, in dimension, the middle between that of the horse and that of the carnivorous.

SECTION III.—TEMPORO MAXILLARY ARTICULATION.

The importance of that region, and the frequency of its lesions, resulting of the projecting position it occupies upon the sides of the head, induce us to make of it a special region, independent of the surrounding parts with which it holds connections of contiguity only.

The temporo maxillary articulation is recognized outwards by its projection, and specially by the touch, which, by touch, will easily exhibit under the skin all the bony parts of the skeleton which compose it.

The posterior border of the articulation is found about two fingers' breadth in front of the ear, from which it is separated by a hollow, partly filled during the motion of the jaws. Its inferior border rises above the cheek, on the same line as the extremity of the eyebrow; the superior is bounded by the sharp edge of the zygomatic process. With the finger applied upon the region, one can recognize the transversal

proeminence produced by the inferior condyle. The condyle of the temporal is also easily defined, and between these bony projections is found a hollow—indication of the articular interline. A scalpel pushed through into that line penetrates without difficulty between the two bony surfaces in the thickness of the fibro cartilaginous meniscus. The skin of that region is thin and loose; the hairs are fine and short. It is often covered with excoriations or depilations which may be the result of accident, but which often are in consequence of a long decubitus during serious and painful diseases. Indeed in colics, animals are often seen, while lying down, raising the head and violently throwing it back on the ground, without being conscious of the pain they must necessarily endure in excoriating the prominent parts of the head; it may even happen that the skin, after repeated like motion, is entirely torn away and the capsular ligament is lacerated, giving rise to an open joint, an accident always very serious as it prevents the regular function of the jaws, and interferes much with the feeding of animals which cannot partake of anything but soft liquid food.

The subcutaneous connective tissue is not abundant, it unites in an intimate manner the skin to the thin muscular layer underneath, constituted by the *panculus carnosus* which unites there with the *zygomatiko auricularis*.

The connective layer situated under these muscles is more important than that which unites them to the skin; it is it which gives rise to the looseness of the skin.

The peripheric ligament of the joint is situated immediately under these layers. Forward, behind and inward it is much less resisting; in this last part, even, it becomes very thin and elastic. The fibres which constitute it are running in different directions. A large *farciculus*, whose direction is oblique, backwards and downwards, deserves our attention. Rising above and outside the temporal condyle, it runs under and a little behind that of the maxillary. Passing over the articular meniscus, the ligament is attached upon its circumference in such a way that there is in reality two articulations—one superior, formed by the temporal condyle and the superior face of the meniscus; the other inferior, constituted by the inferior face of the meniscus and the maxillary condyle. Each of these articulations has a special synovial capsula.

The skeleton of that region shows some interesting peculiarities. The superior articular surface is formed by a condyle and a glenoid cavity; elongated transversally, the condyle is situated in front of the

cavity. The maxillary eminence, transversally extended behind the glenoid cavity, limitates the action of the joint in that direction. The condyle of the maxillary is convex in both axis; the transversal diameter is about the double of the antero-posterior.

As for the meniscus, it is narrower than the articular surface of the temporal. It presents peculiarities of form in relation to the bony surfaces with which it is in contact. Its superior face is slightly convex forward and concave behind; the inferior is concave only. Its thickness is much greater on the borders than on its centre; its fibro cartilaginous structure gives it a sufficient resistance against the pressure of the two articular surfaces, at the same time leaving it a certain flexibility, which in the transversal direction is put into play in some motions of the jaws, during which the form of the superior surface changes slightly to apply itself alternately upon the condyle or in the glenoid cavity of the temporal. There are in that articulation two synovial bursæ separated from each other by the inter articular meniscus. The inferior synovial has the important peculiarity of enveloping all round the condyle of the maxillary, and to be attached at about one centimeter and a half below the articular surface.

The *connexions* of the temporo maxillary joint must be well understood; it is covered in all its posterior face by the parotid gland. Inside the condyle extends as far as the membrane of the guttural pouch; forward the masseter muscle touches the peripheric ligament.

Important *blood vessels* pass at close proximity of that joint. We find behind the external carotid and its two terminal branches; below the articulation, and in a somewhat superficial position, allowing to feel its pulsations, is the subzygomatic artery. One of the branches given by this last artery, the masseterine, passes forward of the neck of the condyle and communicates with the posterior deep temporal by a branch which runs into the sigmoid notch, very near the masseterine nerve; the other, the transversal of the face, remains superficial and is situated between the vein satellite and the facial nerve, which is inferior to it.

The motions of the articulation are very numerous; the opening and closing of the jaws present nothing peculiar. In the propulsory movement, the two condyles come on the same level. In the retro-pulsion, on the contrary, the condyle comes to adapt itself in the glenoid cavity. This motion is limited by the mamillar eminence. In the case of diduction, as during mastication, the relative position of the condyles of the maxillary, as that of the menisci, which are carried with them, is different for each articulation, according the direction of the mastication.

If we suppose the animal chewing to the left, the extremity of the inferior maxillary is carried on that side. The left condyle will correspond to the glenoid cavity of the temporal, while the right one will be in opposition to the condyle of the same side. It will be easily understood that in this case the axis of the articular surfaces, superior and inferior, cross each other very obliquely. The part of the meniscus is to mould itself upon the articular surfaces, in order to render the coaptation more perfect. If the chewing takes place on the right, the positions will be in an inverse condition.

DIFFERENCES.—On the *ox*, that joint, by virtue of its position posterior to the pre-eminence of the orbite and of the development of the horns, is much less exposed to external injuries than that of the horse. Aside of the peculiar form of the condyle of the maxillary, which is concave from side to side, there is nothing peculiar to mention.

In the *pig* the condyle is triangular, consequently it has the tendency to assume the elongated form of the *gnawers*. In *carnivorous* the condyle is exactly fitted in the glenoid cavity, and in these animals but two motions can take place, the opening and closing of the jaws.

SECTION IV.—REGION OF THE CHEEK.

This region extends from the parotid to the commissure of the lips. It has for basis the masseter and alveolo labialis* muscles ; it is bounded forward by the temporal, orbito palpebral region and that of the chanfrin ; behind by all the extent of the posterior border of the branch of the maxillary.

A.—MASSETERINE REGION.

It is separated from the alveolo-labial region by the anterior border of the masseter ; it is flat or slightly convex. It presents five layers.

The *skin* is thin and loose, covered with fine short hairs. The *subcutaneous cellular tissue*, more abundant in low bred animals, is never much developed ; it is never loaded with fat.

The *panniculus carnosus* is spread under the skin over the whole region. It is thin, and even very often its fibres are isolated and united together only by the subcutaneous connective tissue. On its internal face are found some arteriols and the ramifications of the facial nerve.

The masseter muscle, which gives its name to the region and occupies all its extent, is very thick, formed of slightly radiating fibres which rise from the zygomatic crest and are attached upon the pos-

* Buccinator of Percival.

terior border of the maxillary bone. A part of the deep fibres of the muscle, specially those which are in front of the temporo maxillary articulation, have a direction transversal to that of the fibres of the superficial layer. A beautiful nacreous aponeurosis which looses itself at two or three centimetres of the moveable insertion, covers the muscle and has its greatest thickness near the maxillary crest.

We may also mention in the enumerations of these layers the portion of the alveolo labialis* muscle which runs up backward to the last molar tooth. This muscle is run on each side by the two molar glands, the superior is in connexion with the masseter, the inferior is immediately situated between the inferior border of the muscle and the mucous membrane of the cheek.

The skeleton of the region is formed by the inferior maxillary, the superior maxillary, the malar bone, and a portion of the temporal. The inferior border of the masseterine region corresponds to the space which separates the fourth from the fifth molar. The two lamellæ of the inferior maxillary are more or less separated from each other, according to the age of the animal. Below the teeth runs the maxillo dental canal, where the inferior maxillary and artery of the same name are lodged. The opening by which the nerve enters the bone is hollowed in the internal laminæ about 16 centimetres below the condyle of the maxillary.

The superior maxillary nerve passes above the roots of the superior molar and makes its exit by the sub-orbital foramen, as we have said it in speaking of the chanfrin.

Blood-vessels.—Below the condyle of the maxillary, between the cutaneous muscle and the masseter, we find the temporal trunk with its vein satellite, and the facial nerve. The artery is so superficial that its pulsations are easily felt. It divides into two branches—the transversal artery of the face, running along the zygomatic crest, and deeping into the thickness of the masseter, and the masseterine artery. The maxillo muscular artery penetrates also in the masseter muscles, towards the middle of its posterior border; it deeps immediately in the fibres of the muscle running towards its inferior attachment.

The *veins* are satellite of the arteries, but we find, beside, in that region, first, the alveolar vein, situated in a deep position, between the masseter and the superior maxillary bone, and running along the molar gland. This vessel is an enormous canal of communication thrown between the external maxillary on one side and the cavernous sinus

*Buccinator of Percival.

which it joins after running through the ocular sheath ; second, the buccal vein, origin of the internal maxillary, which follows the inferior border of the alveolo labialis, in front of the curved portion of the anterior border of the maxillary, between the last molar and the base of the coronoid process the alveolar vein and the buccal have such a diameter that their borders touch each other ; third, two large branches establish also a communication between the maxillo muscular and the buccal, and the temporal. These two anastomoses, as well as the buccal, are immediately resting on the maxillary.

Nerves.—Aside the inferior maxillary nerve we find the facial, which makes its exit under the parotid with the temporal artery and veins. At this spot the facial has already made its union with the temporal trunk ; it constitutes the subzygomatic plexus, which radiates from that point to the antero inferior angle of the muscle. Its branches are then very numerous. Three or four are more principally noticed ; one, the most anterior, mixes with the divisions of the superior maxillary nerve ; another goes to join the inferior coronary artery.

B. ALVEOLO LABIAL REGION.

Not as wide as the preceding, this region is limited forward by the line of insertion of the fibres of the alveolo labialis ; below, by the commissure of the lips ; behind, by the posterior border of the maxillary ; above, by the masseter muscle.

Convex in the portion corresponding to the alveolo-labialis muscle, it presents a median fissure which defines the separation of the superior and inferior molar teeth. To the posterior border of the projection formed by the alveolo labialis, we notice that of the maxillo labialis muscle*, under which pass the inferior coronary artery and vein.

Under the thin and loose skin the cutaneous muscle mixes up its fibres with those of the superficial muscles of the region. These are, in front, the pyramidalis nasi, a little more behind the zygomaticus, yet more backwards a portion of the facial cutaneous, called in human anatomy the *Risorius of Santorini*.

The third layer is formed by the buccinator, at the inferior border of which is found the maxillo labialis. It is to be noticed that the alveolo labialis is formed of two series of fibres which start from a median raphe, and which give the muscle a penniform aspect. We will place also in this third layer the extremity of the inferior and superior molar glands. The organs of this layer are immediately resting on the buccal mucous membrane.

* Depressor labii inferioris of Percival.

Blood Vessels and Nerves.—Altogether upon the limit of that region and of the masseterine, in front of the so well marked border of the masseter, the glosso facial vein and artery are found, the vein always situated behind the artery. The branches given off by the artery are the superior and inferior coronary going to the lips. These vessels are always accompanied by large veins, often double, sometimes triple in number. A similar arrangement exists for the inferior coronary.

The duct of Stenon by its termination belongs also to that region. It is situated behind the blood vessels, often concealed by them and by the anterior border of masseter which covers it partly.

On the level of the middle portion of the buccinator, it crosses inwards the external maxillary vein and artery to run forward, deeping through the fibres of the muscle to open in the mouth on a level with the third superior molar.

The nerves are furnished by the facial. They ramify in the different muscles of the region and those of the lips and of the nose. The position of its numerous branches thrown as a bridge over the facial blood vessels, is difficult to indicate minutely. We will mention only a large branch which accompanies always the inferior coronary.

[TO BE CONTINUED.]

PORTABLE FOOD FOR HORSES.

The *Journal de St. Pétersbourg* furnishes the following details regarding the preserved food for horses, prepared in the event of scarcity of oats, or in case the transport of the food as used at present should prove too difficult. This food is composed of pounded oats and gray pea flour, mixed with hemp-seed oil and salt. The paste obtained by this mixture is then cut up into thick cakes of about four inches in diameter, pierced with small holes to assist the soaking in water. On being taken from the oven these cakes are strung upon wires, so that each wire holds the daily ration for a horse. Each ration, of the weight of four pounds, is equal in nutriment to ten pounds of oats. It is stated that the horses are extremely fond of these cakes, whether soaked in water or quite dry; and although, when fed exclusively on these cakes, they become thinner in appearance, they do not lose any of their strength, though hard worked.—*Medical Record*.

EDITORIAL.

VETERINARY EDUCATION.

When in our last number of the REVIEW we presented our suggestions to the Hon. Acting Commissioner of Agriculture concerning the propriety of applying to Congress for an appropriation for a governmental Veterinary Institute in Washington or some large city, where practical as well as theoretical advantages would be found, we were not aware that the same advice was given by other Veterinarians. The November number of the *Country Gentleman* contained from Prof. James Law a long article terminating with the same proposition, a portion of which we reprint to-day with the permission of the author. After some lengthy remarks upon the attempts made in Boston and Philadelphia, Professor Law alludes to similar ones made by other members of the profession in a sharp, severe, but truthful manner, and then giving the requisite for a Veterinary School, he closes up by pointing out, as we did, the necessity for action on the part of the general government.

Having been engaged in the teaching of veterinary medicine in Cornell University since its opening, Professor Law acknowledges the errors of such doing and, as in everything, he does it in the manly manner of one who fully realizes the injury done by such work—and he will give us credit for being the first to have pointed out to him the result of that form of teaching. No, agricultural students cannot receive in an agricultural school the education that good veterinarians ought to have, and good as the efforts of the teachers may have been, the result cannot but be the same, viz.: the turning out of so many men scarcely better than empirics. In our estimation veterinary chairs in agricultural schools ought not, cannot cover the whole curriculum of medical studies required for a veterinarian. Zootechny may be taught there, some common, general rules of practice may be lectured upon, but that is all—and it is very gratifying to us to see Professor J. Law take the standard he has assumed in his letter to the *Country Gentleman*.

Still we fear that his call to governmental assistance, like ours, will receive but little attention, and with that prospect in view, we take this opportunity to make another suggestion with hope that it may find better appreciation.

Some time ago a rumor found its way to the papers that the Board of Trustees of Cornell University were considering the propriety of establishing a medical department in the City of New York—to open a

medical College. Have we not enough of them, not only in New York but all over the country? Is not the medical profession already sufficiently crowded? Every one who has some knowledge of the standing of the human medical profession will agree that there is no more need for medical Colleges, and if we are correct in this statement, we would suggest that the Board of Trustees of Cornell University creates in New York a veterinary department of their own. New York offers facilities for such an undertaking surpassed by no other city in the Union, and the success which has attended the establishment of Veterinary schools in that metropolis tells enough of the certainty of success when started under the auspices of Cornell University. A school of that kind will do away with personal undertaking. Sincere and earnest as they may have been, they could, they would never compete with an establishment as that corporation could start; and one amongst all we will say that though it might be considered as likely to interfere with the work in which we have been so seriously engaged in our own sphere for a number of years, we would gladly exert in behalf of the new school all our efforts, and help it on the road to success; we have worked hard to elevate veterinary medicine in America, we have the firm conviction that our work has done some good, but let us have something which would show better prospect for the education of veterinarians and we will, without hesitation or *arrière pensée*, make room for the new start, the Veterinary Department of Cornell University.

“RESPECTABLE PROFESSIONAL STANDING.

“There are few, if any, who can afford to be entirely independent of the opinion of their associates. A medical man may declare his freedom by acting as an individual rather than a part of a great and influential community; but he does so often at the risk of losing his influence, not only as a medical man, but as a member of a learned profession. We confess that we intend these remarks to bear upon the necessity of belonging to medical organizations, or in some way identifying oneself with professional interests generally. Although this is a fact which is not so well appreciated in medical circles as it should be, we now and then have an illustration of its importance. Especially is this the case when a medical man appears as a witness. Here, in order to give his testimony its full force, he has to prove to the jury his capability to testify not only by his education and qualifications, but his affiliation with his profession. In a recent instance of this sort, a medical gentleman of this city, who openly boasted that he did not care to become a

member of any medical society, was severely handled by the attorney of the opposite side, who made it appear to the jury that the gentleman in question was not regular, and that his testimony should be taken with that allowance given to all suspicious witnesses. The result was what might have been anticipated. There is no argument even in a court of law against respectable connection and high standing in the profession, while a suspicion of the contrary is always a handle for an adversary. The moral of all of which is, that it is safer to be respectable, even if it does incur the necessity of belonging to some recognized medical organization."

This we extract from that most excellent paper, the *Medical Record*, and the weight of this editorial cannot escape the attention of our veterinarians. There is in it an amount of truth which will not escape notice, and we feel that some of our colleagues will appreciate the value of the advice it gives. Veterinary societies are few in the United States, but we consider the duty of every member of the profession to belong to them—not a duty to himself, but to veterinary medicine, to which he belongs. The question is not whether he cares or not; nor whether or no his professional standing and connection will not suffer from his ignoring respectable bodies composed of the majority of well recognized practitioners; but in the condition where veterinary medicine is as yet in the United States, we hold that every Veterinarian, no matter where his professional position places him, ought to work for the benefit and elevation of the profession; and where can he better do it than in the centre of a scientific society?

ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The graduates of the American Veterinary College took opportunity of the meeting of the United States Veterinary Medical Association, where many of them were present, to organize an Alumni Association. Original students of the American Veterinary College and graduates of a then defunct institution—all students of the same faculty—came together and formed that association, which, we have no doubt, is called to become one of the most respectable bodies of the veterinary profession in America. The fact that the members of that alumni were graduates of the same faculty, though under different schools, gives a satisfactory proof that a college does not consist in a name, or in a building, but of the faculty of the body represented by those whose en-

ergy, work and teachings have made of a former student a trustworthy member of a profession.

Graduates of the same school, members of the United States Veterinary Medical Association to which you belong, your alma mater, the American Veterinary College, may feel proud of your professional conduct, and wish you success in your new undertaking.

VETERINARY APPOINTMENT.

The *Scientific Farmer*, of Boston, gives us the announcement that our friend Charles P. Lyman, V. S. E., of Springfield, Mass., has been engaged to lecture on veterinary matters to the Massachusetts Agricultural College. We sincerely congratulate the Doctor on his appointment; so much so that we understand that his course of lectures will be only on "such portions of veterinary science and practice as will be of special value to the students as prospective owners of live stock." We feel certain that he will do justice to his subject, and will take advantage of the experience laid before him by the article of Prof. Law, in limiting his subject to general common rules of practice in those cases where veterinary assistance is little needed, or, in cases of emergency, to wait until the arrival of the proper attendant.

VETERINARY INSTRUCTION.

Editor Country Gentleman :

* * * * *

It may be justly claimed that these colleges of Boston and Philadelphia were managed by mere pretenders and adventurers, while no graduates of any reputable veterinary college have ever fallen so low. But this is healing the wound altogether too slightly; the source of the trouble lies much deeper.* *All regular graduates of veterinary medicine are not immaculate, and the veterinary profession cannot close its doors effectually against every hypocritical scoundrel who sees in its degree a stepping stone to the acquisition of filthy lucre. Even the regular graduates of the veterinary colleges are found among us laying claim to titles to which they have no right, and acting altogether in the most unprofessional manner.*

The source of danger in the schools in question lay in their private and irresponsible character. Let it be possible for private individuals to obtain a charter authorizing them to grant degrees, without fear of

*Italics are ours.—ED.

strict supervision as to the modes, and there will soon be found plenty of unscrupulous men who will seek to work such a machine for their own personal aggrandizement. This is the rock on which the two schools in question have split, and this it is that should be jealously guarded in chartering any new veterinary college.

REQUISITES IN A VETERINARY SCHOOL.

A veterinary college requires a body of trustees whose position shall be a guarantee of good faith, such an oversight in fact as is now given to our best State agricultural colleges. It requires a faculty whose attainments are guaranteed not only by public confidence, but by the possession of a degree of one of the best existing veterinary colleges, and if possible by repute for original investigation. It requires that all candidates for admission shall submit to an entrance examination to test their possession of an education sufficient to enable them to pursue their professional studies to advantage. It requires that a very full course of study shall be pursued within its walls before a candidate can present himself for examination in order to the obtaining of a degree. It requires that degrees shall only be awarded after a satisfactory examination at a designated time and place, by a board of examiners apart from the faculty of the college. It requires, finally, a sufficient endowment, so that it may be fully furnished with all the necessary appliances for rendering the instruction lucid and thorough, and to guard against the constant temptation in medical schools to crowd in numbers, irrespective of fitness, and to graduate them at the earliest possible moment, in order to increase the salaries of the teachers.

The establishing of such an institution would very fitly come from the central government. By the land scrip grants every State has been supplied with the means of carrying on an agricultural and mechanical college, but in the midst of all this, the vast interests that centre in our live stock and their diseases have been almost entirely ignored. No country in Europe, excepting Russia, at all approaches us in the number of its live stock, and yet no civilized land so utterly ignores the need of veterinary care. The following table, giving the numbers of the four principal classes of live stock in the United States, and in two of the foremost countries of Europe, will illustrate this :

	Horses and mules.	Cattle.	Sheep.	Swine.
United States, 1875.....	11,149,800	27,870,700	35,935,300	25,726,800
Prussia, 1867....	2,313,817	7,996,818	22,262,087	4,875,114
“ 1877.....	3,352,231			
Great Britain and Ireland, 1874....	2,226,739	6,115,491	30,313,941	2,422,832
“ “ 1877....	2,790,851			

It will be seen that we bear the palm for numbers of all kinds of live stock. In sheep alone do they approach us, though even there they leave us a magnificent lead. In all others we exceed them by three, four, and even five times. What, then, are the relative precautions that we have adopted for the preservation of this splendid array of wealth? Prussia, with a little over a third of our live stock, has five veterinary colleges—at Berlin, Stuttgard, Dresden, Hanover and Munich—maintained at State expense, and furnished with ample subjects and pecuniary assistance for experimental investigation when judged necessary. England, with less than half our live stock, has four veterinary colleges—one in London, two in Edinburgh, and one in Glasgow—all independent of government aid, being either simple personal ventures, assisted by agricultural societies, or, as in the case of the old Edinburgh College, sustained by private endowment. One effect of this divorce of State and veterinary colleges may be seen in the result of the recent outbreak of rinderpest, which, in Prussia, was promptly extinguished within a week, whereas in England it smouldered for months before a committee of the House of Commons had time to fully consider what ought to be done. In the former outbreak of 1865, for which England was still less prepared, the disease was allowed to increase for six months, and its victims already amounted to 17,000 head per week before efficient measures for its extinction could be inaugurated. On that occasion England lost over \$40,000,000 in the space of eighteen months.

GOVERNMENT ACTION NEEDED.

Some power ought to be vested in the central government, and the power of taking measures to exclude and extinguish animal plagues is one of them. As well appoint a commission to deliberate as to whether the striking of matches in a powder magazine should be permitted to continue, or take a vote of the passengers as to whether the engine should be reversed and the brakes applied when the danger signal is already shining ahead, as wait for Congressional deliberation when a deadly animal plague is suddenly brought into our midst. But the Government, as such, is not acquainted with the nature of the danger, or the best methods of averting it, and hence the great value of a State Veterinary College, which can advise and direct in such a matter.

The veriest fraction of the \$20,000,000 lost last year by hog cholera would have sufficiently and permanently endowed a veterinary college and experiment station, which would have paid the country a thousand times over in substantial results. In making any such movement, the

great thing to be guarded against is the squandering of resources. Many conceive that the end is sufficiently gained by the establishing of a veterinary chair in each State Agricultural College. A recent writer in the *Philadelphia Press*, after justly exposing the dangers of private veterinary schools, and calling attention to the need of sound veterinary education, concludes by asking Government "to establish a professorship at West Point, and educate a class of veterinarians, one of whom shall be attached to each regiment of cavalry." Why not also endow a medical professorship at West Point to furnish physicians for the army? Surely, if the medicine and surgery of half a dozen different genera of animals can be taught successfully by a single professor, that of one—the genus homo—may be with equal success. To state the proposition is to show its absurdity. The veterinary student must go over similar ground in every respect with the medical student, but he must go over this in its application to solipeds, ruminants, swine, rodents, carnivorous and land and water birds, and yet, while the medical school boasts its ten to twenty chairs, the veterinary must be satisfied with one solitary professorship, attached to an agricultural or military institution! The veterinary teacher may feel complimented by this estimate of his power, but few would care to undertake the load of responsibility thrown upon him.

If the Government can undertake the establishing of a veterinary college, with a sufficiently extended curriculum to make it worthy of the name, it will prove an excellent investment if properly officered and furnished; but no such good can ever be expected from the endowment of fifty separate professorships, each in a different institution, and each expected to turn out veterinarians. This would be the most efficient way to make the teaching superficial and imperfect, and to destroy the very possibility of observation, experiment and progress. Let us, if we can, have a national veterinary college, but do not let us squander our means on a host of isolated chairs, which can never fill the existing void, and the creation of which will only postpone indefinitely that concentrated and efficient work by which the permanent protection of our live stock may be the better assured.

Cornell University.

JAMES LAW.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

The above Association held its regular fortnightly meeting in the lecture room of the College, Union Avenue, on Thursday evening, November 8, Professor McEachran in the chair.

After the usual routine of business, the President referred to the large and handsome additions that have been recently made to the library—some sixty volumes, comprising many of the standard works on Physiology, Anatomy, Pathology, etc., etc.

Votes of thanks were then tendered the President, Professor Osler and Mr. C. J. Alloway, for their donations to the library.

Mr. J. A. Couture, V. S., was then called upon to read his communication of a case of extensive sloughing of the skin and muscles on the thigh of a horse, which was followed by an animated discussion. The event of the evening was the reading of a paper on "The So-called Hog Cholera, or Typhoid Fever in Pigs," by Prof. Wm. Osler, Vice-President of the Association. The lecturer in the course of his remarks went on to show the great importance of the subject under discussion to the agriculturist, as stock raisers in the United States suffered a loss in hogs of \$20,000,000 annually, principally in Ohio and Illinois; neither is the disease unknown in this country, as during the past season a well known agriculturist near Quebec has had his herd decimated by its ravages.

The doctor also spoke of a number of experiments conducted by him at the Veterinary College here, in which the disease was produced in five subjects from different methods of inoculation, and minutely described the symptoms and post-mortem lesions in each. He showed the infectious nature of the disease, and urged the importance of strict enforcement of sanitary laws.

Professor Osler intimated, however, that the paper was only preliminary. He had made extensive notes of all the cases, and of a large number of post-mortem examinations made at Quebec. Specimens were preserved at the College Museum, and drawings of post-mortem appearances were being prepared (a beautiful specimen of which was exhibited), and it was intended that an exhaustive paper on the subject should shortly be presented to the profession.

The President remarked that the disease was discovered in two pigs lately imported, and fortunately detained at the Quarantine. Professor Cressy also gave his experience in this disease which, being somewhat extensive, was listened to with considerable interest.

ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

A meeting of the graduates of the American Veterinary College was held in the Ashland House, corner of Fourth Avenue and Twenty-fourth Street, New York City, on the evening of September 18th, 1877, for the purpose of organizing an Alumni Association of that institution. The meeting was called to order by A. A. Holcombe, N. Y., and its objects tersely stated. Upon motion, Dr. J. L. Robertson, N. Y., was elected Chairman, and C. B. Michener, Carversville, Pa., Secretary. Eleven gentlemen were present : J. L. Robertson, M. D. V. S., N. Y. ; C. B. Michener, Carversville, Pa. ; E. Traver, Rhinebeck, N. Y. ; J. B. Cosgrove, Worcester, Mass. ; J. D. Hopkins, N. Y. ; J. S. Saunders, Boston, Mass. ; A. A. Holcombe, N. Y. ; J. C. Corlies, Newark, N. J. ; C. H. Hall, New Bedford, Mass. ; W. J. Coates, N. Y., and G. P. Peniman, Worcester, Mass. Upon motion of A. A. Holcombe, seconded by J. B. Cosgrove, the Chair appointed A. A. Holcombe, E. Travers and J. C. Corlies, a committee to draft a Constitution and By-Laws, and report the same at the first annual meeting of the Association to be called at the close of the next session of the American Veterinary College in February, 1878. The Secretary was instructed to inform all the absent graduates of the measures taken to effect the organization of the Association. Upon motion of J. B. Cosgrove, the meeting adjourned.

C. B. MICHENER, *Secretary*.

ROCHESTER VETERINARY MEDICAL ASSOCIATION.

TO THE EDITOR OF THE VETERINARY REVIEW :

SIR : The veterinarians of Rochester, N. Y., assembled together on Saturday evening, October 27th, and organized themselves into a society to be called the Rochester Veterinary Medical Association.

The object of the Association to be the cultivation of fraternal feelings among veterinary practitioners to contribute to the diffusion of sanitary science ; the elevation of veterinary science to an equal rank with other scientific branches of medicine ; the mutual improvement of its members by the presentation of such cases of diseases, together with their treatment and termination, as may come under the notice of any member, which may be deemed of sufficient interest to bring before the Association.

Also, the drawing up a veterinary tariff, or bill of fees, to be adopted by its members.

J. C. MCKENZIE, *Secretary*.

REPORT OF CASES.

RABIES.—By W. BRYDEN, V. S.

On the 25th inst. I was called to East Weymouth, Mass., to a case of rabies. The subject was a white horse, 25 years of age, belonging to J. H. Clapp, Esq., a prominent shoe manufacturer. The history of the case, as near as I could learn, was as follows:

About three (3) months ago a dog ran into Mr. Clapp's grounds, bit one of his—a fine large Newfoundland—then left, and was found next day drowned in a pond near by. The owner of the animal said he had been poisoned. About six (6) days after this, Mr. Clapp's dog showed symptoms of illness, and was tethered in an open shed, where he soon became cross and snappish, gnawing tin dishes, or whatever was placed within his reach. While in this condition, the old pet horse walked into the shed, and was instantly seized by the nose and bitten very badly. The dog was then shot. This was about nine (9) weeks ago.

The horse's wounds soon healed, and little more was thought of the matter. On the 23d current he was driven to a trotting park in the vicinity, and on their return home had several short races with other horses, in which it was remarked that he trotted as well as in his younger days.

Next morning, the 24th, in answer to inquiries about the horses, Mr. Clapp was informed by his colored man, that "*Belle*"—who had won a race the day before—*is all right, but "Old Maj." is wrong, wouldn't let me wipe his nose off, and don't drink worth a cent.* But little was thought of this; he was harnessed and driven to the depot, about three (3) miles, and there put up in a stable to await the return of his owner from Boston in the afternoon. On the way home, it was remarked that "*Old Maj.*" was feeling remarkably well, and like a trotter, but that he kept twitching his head as if a wasp was trying to light on his nose. On reaching home, he did not care for either food or drink, and was placed in a box stall, when he soon became restless, pawing and sweating, at times swinging his head in a circle near the ground, at others retracting his lips and twitching back his head, then opening his mouth and closing it slowly. These symptoms had been gradually increasing in severity up to the time of my arrival, about 4 o'clock P. M. of the 25th.

I found him standing in the middle of a strong roomy box stall, swinging his head wildly in a circle near the floor, lips retracted, ex-

posing the teeth, and a peculiar, bright red mucous membrane; his eyes looked wild and drawn together, the ears passive, the neck and limbs seemed to be free from spasm, but the body appeared somewhat rigid, and the tail stuck straight out, and was in a constant tremble; he was bathed in perspiration, his breathing quick and loud, and a short hard cough troubled him every two or three minutes; he occasionally lifted the near hind leg and struck out against the wall, not viciously—indeed, none of his acts appeared vicious—but the result of intense pain and suffering. I pronounced the case Rabies, and advised his destruction, which was immediately carried out. No post-mortem examination was made.

FRACTURE OF MALAR BONE—TETANUS—RECOVERY.

BY L. V. PLAGEMAN, M. R. C. V. S. L.

BROOKLYN, Nov. 2, 1877.

Having recently met with a remarkable case of tetanus, I thought I would furnish its history for the next number of the VETERINARY REVIEW.

The subject was an aged gray mare which got injured by a team of runaway horses attached to a coach, and no driver with them. She was standing in front of a butcher's store, on the street, hitched to a wagon, when the team of horses at top speed struck the mare with such force in her chest that she was thrown off her front feet. She then fell and broke one of the shafts. She was taken out and I was sent for. I was away from my office at the time, but saw her two or three hours later. I found her with a few contused and lacerated wounds about her chest and limbs, and a fracture of the malar bone on near side, which was very trifling, however. She had tetanus, and I had her sent to my infirmary, a distance of about four blocks. I had her placed in a dark stall, where she was kept perfectly quiet; had the wounds bathed with warm water and dressed with a little tincture of aloes; gave her ozij chloral hydrate in half a pail of water, which she drank, and blanketed her. From that day to the time of her discharge I never gave any more medicine. She was discharged on the thirteenth day after the occurrence, and this is the twenty-first day. Yesterday she was put to light work for the first time, and is doing well, though a little stiffness still remains. Was tetanus produced by the shock?

[It seems to us doubtful that the attack of tetanus(?) be as sudden as recorded in this case, though we know of a circumstance in a mare, very high tempered, which had an attack of tetanus from merely nervous ex-

citement while being driven with shoes to which she was not accustomed; but the symptoms did not show themselves for about five days after. In her case the symptoms lasted some six weeks, and the short duration of the case above recorded would make it doubtful to us of its being a case of *idiopathic tetanus*.]

URETHRAL CALCULI.

By J. T. DUNCAN, V. S., Goderich.

Some time ago a farmer from a distance requested me to see a horse of his which had passed very little water for more than thirty-six hours, in spite of the administration of liberal doses of "saltpetre" and "sweet nitre."

On my arrival, I found the patient exceedingly uneasy, abdomen evidently distended, the urethra prominent and full along its visible course, and an occasional drop of urine escaping from it. It was plainly a case of urethral obstruction, and I prepared at once to pass the catheter, as, from the condition of the patient, rupture of the bladder might occur at any moment. On attempting to do so, however, I found, firmly fixed in the urethral tube, and almost completely blocking it, a large, hard, smooth calculus. As it was low down, I attempted to extricate it by means of the forceps, but, from its great size and hardness, it could neither be removed whole nor reduced in size. The knife was the only other alternative, and as no time was to be lost, I determined to operate with the patient standing. By two careful incisions in the urethral tube, the calculus was removed, and with it escaped the urinal contents of the urethra. Immediate relief was apparent, but the bladder, having become paralyzed from over distention, it was necessary to evacuate the viscus by means of the catheter. The horse made an excellent recovery.

In regard to the calculus itself, the patient unfortunately stepped on and injured it. The remainder, however, which shows clearly the great size of the concretion originally, has been presented to the museum of the Ontario Veterinary College.

This case forms an excellent commentary on the use, or rather the abuse, of diuretics by non-professional gentleman.

It also clearly shows the importance of operating in such a case with the patient standing. Had he been cast, the bladder would almost inevitably have been ruptured. This is but the second case of urethral calculus occurring in a practice of seven years, the other being that of a ram. In this case the calculus was exceedingly small, was discovered in

the vermiform appendix, and removed ; unfortunately, rupture of the bladder had already taken place. This specimen I also presented to the Ontario College.

TYMPANITIS TREATED BY PUNCTURE.

By C. H. PEABODY, D. V. S.

The three cases reported below were quite interesting to me, and hoping they may be so to some of the readers of the REVIEW, I beg to report them.

CASE No. 1.

On the 18th of July last, at about 2.30, P.M., I was called to see a sorrel mare which had been suffering from flatulent colics since 8 o'clock that A. M.

On inquiry found the animal had received two (2) drenches which were composed of red pepper, gin, laudanum, ether, aloes, saleratus, and turpentine, which had been given warm and, as the animal would not swallow it, had been administered by pouring it through the nose.

When I saw the animal she was standing with head extended, nostrils dilated, respiration quick, and was distended at the flanks, as full and hard as it could be; the anus was protruding. I concluded to puncture at once. Choosing the right flank about half way between the external angle of the ilium and last rib, and about one and a half inch below the transverse processes of the lumbar vertebræ, plunging the trocar and canula through in an oblique direction inward and downward. I withdrew the trocar, allowing the gas to escape for about three or four minutes, and then it stopped.

I then removed the canula, the animal seemed to be easier; still, she soon laid down again, rolled on to her side, and in a few minutes death closed the scene.

CASE No. 2.

September 10, 4.30 A. M.—Was called to see a bay mare, 6 years old. Found out, on my way to the stable, that the animal had been sick all night, and treated by a blacksmith.

I found her in about the same condition as No. 1. She had received three drenches of laudanum and ether with linseed oil, and half a pound of the sulphate of soda, besides a dozen or more injections of soap and water.

Without giving any internal medicine, I at once punctured (as in Case No. 1). The gas escaped for nearly four minutes. She became

easier, and passed quite a lot of flatus and feces, and then began to pick at the hay. The pulse was 60 and weak. She seemed so exhausted that I gave her a ball composed of ammo. carb. dr ii, gum camph. dr i, radon genti dr i, and left one to be given in the afternoon, with light feed. On September 11, I saw her and entirely well; no swelling at place of puncture; pulse, respiration and temperature all normal. On the 18th she resumed her work, and has been well since.

CASE NO. 3.

October 9.—Was a sorrel gelding, 6 years old. I saw him half an hour after he first showed any signs of uneasiness. I found him lying on his back with legs turned upwards, and staying in this position for five minutes at a time. When up, the flanks are found somewhat swollen, though not excessively. He would extend his head and neck forward, stick out his nose, and then, throwing his whole body backward without moving his feet, he would allow gas to escape, through the mouth, of a very sour and offensive odor. The animal did not show real pain, but was very uneasy, and if it was allowed to lie down would get in the position before described. I gave a ball of chlorate of lime, dr iv, mixed in some bread. It seemed to relieve him, and he stopped his retching. In about twenty minutes I gave a drench of laudanum, sulph. ether aa oz iss, aromatic spirits ammonia oz i, pulv. Barb. aloes dr iv, linseed oil oz iv. After watching two hours and finding him easier, without the swelling at the flanks, and apparently perfectly well, I went home, leaving orders not to have him fed in the morning until I saw him.

October 10, 5.15 A. M.—The watchman came over and called me, saying he thought the sorrel colt would die, as he was all swollen up and struggling violently. When I got to the stable I found him with the flanks distended, respiration labored, covered with a cold sweat, extremities cold, and standing with his legs well braced as though he was afraid of falling. My first impression was that he was suffocating, so I punctured at once, as before in Cases 1 and 2, the animal not moving. The gas escaped well for several minutes. I then removed the canula and allowed the animal to move around; he was much easier.

His pulse was then 60, and weak; temperature, $103\frac{1}{5}$; respiration, 24. Having nothing handy but some rum, I gave him a pint of it. At 8 A. M. the pulse was 48; temperature, $101\frac{3}{5}$; respiration, 16. He was fed light, and showed no further signs of trouble until the 15th, when my attention was called to an enlargement on his side. On looking at it I found what proved to be an abscess. I opened it and allowed

to escape about four ounces of thick and greenish pus. I washed the cavity with carbolic solution. It discharged for a few days, but I kept it clean, and being a superficial abscess the discharge soon stopped and the cavity healed up. Now the animal is, as far as I can see, as well as ever.

CORRESPONDENCE.

VETERINARY EDUCATION.

EDITOR VETERINARY REVIEW :

DEAR SIR : I was not very much surprised to see the letter of Mr. Coleman in one of the last issues. Knowing that Professor Smith had been on a visit to Ottawa, and that he had expressed himself to some friends as being engaged in collecting material to refute my statements concerning his school ; but, lo ! the mountain has conceived, and brought forth a tiny little mouse.

Mr. Coleman says he received a reply "without a single allusion to the point at issue," and charges me with "want of courtesy." Here is the reply :

"DEAR COLEMAN : I am out for the first time for a fortnight, having sustained a severe injury to my knee from my horse falling on my leg. * * * I received your letter in bed, or would have answered it sooner. You entirely mistake my meaning—the reflection is on the curriculum, not on the students. I think that is clear enough. You of course understand that it is a disagreeable task I have undertaken ; but Mr. Smith has brought it on himself, why should he not have made some effort to meet the views of the profession ? Why persist in a course which no person having the interests of the profession at heart can endorse ? My remarks are calculated not to injure his school, but to better it, and no one would be more sorry than myself to injure him. We have long been friends. We should be friends, and if we are not, it certainly is not my fault. * * * Hoping that I may continue to count on your *continued assistance*, in doing what I know is our duty to ourselves, and those whose positions are influenced by what we do."

With regard to the second letter, if it ever reached me, it was when in bed, to which I had to return, and probably was forgotten or mislaid, as I have no recollection of receiving any second letter requiring a reply. For this oversight, of course, I gladly apologize. It may be necessary to explain my reason for making use of a conversational com-

D. McEACHRAN.

munication. Had Mr. Coleman not on many occasions, without reserve commented freely on the shortness and incompleteness of the course at Toronto, and as repeatedly pledged himself to support me in bringing about the necessary reforms (which I have reason to believe he honestly did), and had I not given him credit for independence of character, I certainly would not have risked invoking the wrath of Mr. Smith on his devoted head.

With regard to other two letters by Mr. Stalker and Mr. Duncan when it is known that the former I have never met, and the latter I know only by giving him (like many more of the Ontario graduates,) advice on difficult cases, the value of their remarks on the relations of Mr. Smith and myself fifteen years ago, and the charge of ingratitude on my part, will be appreciated.

I have much pleasure in receiving more than one letter of thanks from friends of the profession in Ontario for improvements which are already apparent at Toronto. Hoping they may continue to progress in the right direction, and that their object may in future be progress, as well as profit.

Yours faithfully,

D. McEACHRAN, F. R. C. V. S.

Montreal Veterinary College, Oct. 18, 1877.

GRADUATES OF MONTREAL VETERINARY COLLEGE PRACTISING IN THE UNITED STATES.

Williamson Bryden.....	Boston.....	1870
A. H. Baker.....	Chicago, Ill.....	1875
Oliver C. Farley.....	(Chelsea) Boston.....	1876
Jedde C. Fogg.....	Boston.....	1876
John C. Mulloy.....	Boston.....	1876
James R. McLaughlin.....	Watertown, Mass.....	1877
William A. Murphy.....	Boston.....	1877
John F. Ryan.....	Chicago, Ill.....	1877
C. C. Lyford.....	Roscoe, Ill.....	1877
Dillon S. Brown.....	Genoa, Ill.....	1877

AMERICAN VETERINARY REVIEW,

JANUARY, 1878.

ORIGINAL ARTICLES.

FORMATION OF THE CORPUS LUTEUM.

NOTES FROM A LECTURE BY PROFESSOR DALTON, DELIVERED AT THE AMERICAN VETERINARY COLLEGE.

On Saturday morning, December 10th, 1877, at the American Veterinary College, Professor Liautard, in the presence of Professors J. C. Dalton, T. G. Thomas and others, successfully removed by means of the ecraseur, per vaginam, both ovaries of a gray mare about eighteen years of age. After the operation, Professor Dalton said to the class :

“GENTLEMEN : I am in hopes the mare from which these ovaries have just been taken, has regularly been in heat up to the present time, although I doubt, from the external appearance of the organs, if we shall find such to have been the case.

“We desire to see *how* the corpus luteum is formed, but if the animal has not been in heat for a lengthened period of time, we shall be disappointed in our expectations; for the corpus luteum is formed as the result of ovulation, so that when these regular processes cease, the formation of corpora lutea ceases also. But although this should prove to be the condition of the ovaries we are about to examine, we shall still see the characters presented by the organs after the cessation of the regular periods of heat, or what we call, in the human female, the *menstruation*.

“The ovary is composed of a collection of closed sacs or follicles, called Graafian follicles, embedded in a mass of connective tissue. At first these follicles were believed to be the true eggs, but in 1827, this theory was disproved by Von Baer's discovery of a microscopical egg within the follicle. The diameter of this egg is about $\frac{1}{25}$ of an inch.

“The ovary you will observe is covered by an investment continuous with the peritoneum, beneath which is the tunica albuginea corresponding with the thick fibrous coat of the testicle in the male. The Graafian follicles are at first situated deep in the substance of the ovary and are quite small.

“As they enlarge and the eggs which they contain come toward maturity, they approach nearer to the surface. The walls of the follicle consist of compact connective tissue, lined with epithelium, and enclose in a transparent fluid.

“Beneath the most prominent part of the follicle, at the surface of the ovary, there is a thicker mass of epithelium than elsewhere; and it is this thickened mass at the point of prominence that contains the microscopic ovum. One or two of these follicles come to maturity at time of heat, and it is their rupture and the discharge of their contents that constitute the first step toward the formation of a corpus luteum. But how does this take place? As the follicle approaches the surface of the ovary, it steadily enlarges by the increase of its fluid contents; so that its coats become distended, and are finally ruptured under pressure from within during the vascular excitement which exists at this time.

“The walls of the follicle and the surrounding elastic tissue now react, and the fluid which filled the cavity is forced out. The fimbriated extremity of the Fallopian tube stands ready to catch the fluid, and with it the egg which it carries into the cavity of the uterus.

“Now, what happens in the ovary? We have there a wound or cavity something like that of a ruptured abscess; and, in fact, the process of repair is very similar to what occurs in the healing of an abscess. The walls of the cavity, being no longer distended by their fluid contents, collapse, and eventually become filled with granulations.

“In woman, and, in fact, in some animals, to a greater or less degree, hemorrhage takes place into the cavity of the follicle immediately after its rupture, and the effused blood coagulates. In the human female and in the pig it forms a solid mass of coagulum; while in the cow and sheep but little hemorrhage takes place, and in the bitch it is always quite limited.

“But whether hemorrhage follows the emptying of the follicle or not, the process of repair is the same or nearly so in all animals. The inner surface of the membrane of the follicle begins to thicken at the bottom of the cavity, and this thickening gradually extends until it reaches the point of rupture where it stops. The thickening of the

membrane takes place so rapidly that it is thrown into folds or convolutions precisely the same as takes place in the brain of the fœtus, which is at first smooth at the surface, and becomes convoluted by virtue of its rapid growth and limited confinement within the skull.

“At the same time, this new tissue assumes a peculiar color; in woman it is always yellow, in the cow it is first pinkish and then yellow, while in the pig it is orange followed by yellow. The growth of the thickened membrane goes on until the cavity of the follicle is entirely filled except a little spot in the centre, so that when the process is completed your corpus luteum represents nothing but a *ruptured and healed Graafian follicle*.

“We will now proceed to an examination of this ovary. You see it is kidney shaped and quite vascular upon its surface, the blood vessels being shown best on its convex border.

“If the periods of heat had followed each other in their natural course, I should expect to find little transparent spots on the ovary indicating the presence of follicles approaching the surface. I find some follicles here which are cyst-like, with adventitious adhesions to the neighboring tissues; but this is a morbid condition, which is also sometimes seen in women, especially in prostitutes. These cysts contain nothing but fluid, although it is probable they were originally Graafian follicles, and had they remained in the ovary, protected by its tissue, might have come to maturity as usual. Be this as it may, after the normal function of the ovary comes to an end, the organ becomes more solid, the follicles cease to develop, and the corpora lutea also disappear.

“The normal Graafian follicle, as you see, is transparent, and its fluid less abundant than that of the cysts. After being evacuated by puncture its walls collapse, being very thin. I note one thing in the ovary of this mare, and that is that the peritoneal covering is quite loose, unlike that of the human ovary and of some other animals. In the specimen before us we find no corpora lutea; the Graafian follicles which we see are all quiescent. Had the usual periods of heat recurred, we should probably have found some of these follicles which are near the surface ruptured, and forming corpora lutea.

“In this second specimen, taken from a mare dead with acute enteritis, you will notice the unusually large size of the ovary, which is a morbid condition. Cutting into its tissue you see we have divided several large follicles, which all contain a purulent fluid. This increased size of the ovary, and the presence of pus in the cavity of the follicles

is, no doubt, a result of the spreading of the inflammation from the intestines to these organs. This is quite a common occurrence, especially when any of the lower abdominal organs are inflamed; and it is hardly a subject for wonder, when we consider the vascularity of the ovaries, and their relation to the other abdominal viscera."

A. A. H.

HYDROPHOBIA.

A Paper read before the Montreal Veterinary Medical Association, the 22d of November, 1877, by J. A. COUTURE, V. S., Lecturer on Materia Medica and Demonstrator of Anatomy in the French Department of the Montreal Veterinary College.



MR. PRESIDENT AND GENTLEMEN:

Hydrophobia is described by Williams to be "a disease originating in the canine, and less frequently in the feline race. During the progress of the malady a specific virus is developed in the saliva of the affected animal, which being implanted through a wound, bruise or thin epidermis without abrasion or wound, conveys the disease to other animals and to man. After an indefinite period of latency, it causes pain and stiffness in the bitten part, excitement, feverishness, inability to swallow liquids, a tendency to bite, great prostration and death. The poison is only recognized by its morbid effects in the animal economy." *

Hydrophobia is a disease which has been known from very early times. Some writers fancy they can trace it to Homer; however, Aristotle, who lived a century after Hippocrates and more than six after Homer, is the first who mentions the rabies in dogs. He says: "Dogs are subject to three diseases—the rabies, the angina, and the podagra. Rabies causes madness in dogs, and all animals they then bite have the rabies *excepting man*. This kills dogs and all that are bitten *excepting man*." † This idea of the man being free from the contagion of rabies seems to have prevailed for a certain period. Like other epizootic and contagious diseases the prevalence of hydrophobia is liable to many fluctuations, at times prevailing to a great extent, whilst for long periods the disease is almost unheard of. Baukin says that "in 1271 wolves became affected with rabies in Franconia, and contrary to their

* Williams' "Principles and Practice of Veterinary Medicine."

† Mosely on Hydrophobia.

usual habits they spared the herds and flocks and attacked human beings. Upwards of thirty men fell victims to these attacks. In 1590 canine madness prevailed in Spain and amongst the wolves in the province of Monthelliard.”* The doctor, Heberden, who in 1810 was ninety years of age, had not seen a single case of hydrophobia previous to the epidemic which occurred in England at the beginning of this century both among dogs and foxes.† Since that time to 1869 there has been a decrease in frequency of the disease. In 1869 Mr. Williams witnessed the disease in a pack of hounds in the north of England. . . . ‡

In 1872 or 1873 an epizootic broke out in the United States, and you all remember the terror caused, especially in New York, by this dreadful disease, and the exciting paragraphs of the newspapers, so much so that hundreds of dogs were destroyed for fear of their becoming rabid. In this country there has been no outbreak of the malady, some isolated cases, here and there, which are destroyed generally before they do any mischief.

In England the disease seems to be permanently established. In the *Veterinarian* for October last, Mr. Mears, the house physician of the London Hospital, is made to say that two persons per day now come to have bites cauterized at this institution; that a dozen cases of marked hydrophobia have come to his notice this year. The London correspondent of the *Montreal Gazette*, dated November 8, says “that seven deaths have occurred lately from hydrophobia, and quite a panic has been created in several districts, leading to a wholesale slaughter of dogs and a great abundance of letters and leading articles in newspapers. It is unfortunately true that rabies is just now somewhat prevalent among our canine friends. . . . The cases of hydrophobia hitherto reported have generally been caused by the bite of a stray dog, and it is not pleasant to think that there is a multitude of these beasts wandering about the country, half starved and diseased, and suffering, many of them, from the infection in various stages. This is not a mere assertion. I can give you a case in point. Near Watford a well known and highly respected young fellow was walking along alone, when he was suddenly attacked by a wandering retriever, and although he succeeded in beating off his assailant, he was, of course, severely bitten. The dog got away and has not been since, but the man died within a month. Stray dogs were at once proscribed, and in three days the

* Fleming.

† Mosely on Hydrophobia.

‡ Williams.

police killed no less than twenty-two ; of which several showed unmistakable symptoms of hydrophobia. Within the last month or so, I think, at least twenty deaths from rabies have been reported in the newspapers. . . . ”* These statements are not very encouraging when we think that the London Hospital is only one of many, and that the number of dogs in that city is to be counted by hundreds of thousands.

The term hydrophobia, derived from two Greek words signifying *fear of water*, commonly employed to designate this malady, is not at all correct when applied to animals, for dogs, specially, appear sometimes to be very anxious to get it, some will plunge their nose deep into the pan containing the water ; whilst it is a very improper name to designate rabies in human patients. The fear of water is not a characteristic symptom in man, as it is not always present in this malady, and those who have read the experiment made by Doctor I. H. Griscom at the New York Hospital in 1855 will doubt even whether there is a dread of that liquid. A man had been bitten at the lip by a mad dog ; when the doctor saw him his pulse numbered 160 beats, the excitement was intense, the attendants had been obliged to strap the patient on his bed. He was warned by these attendants that the sick man was much afraid of water. However, the doctor resolved to test whether there was really or not a dread of that fluid in this disease. He induced the patient to take a little water in his mouth and keep it there, not to swallow it. To this the patient acceded, and after awhile he emptied his mouth. Then the doctor gave him a piece of ice, and told him to let it melt in his mouth, and try to swallow the water, drop by drop, as the ice melted. This was done, and another piece of ice was given. The patient said it brought him great comfort. From this the doctor argues that there is not a *dread of water*, but of all sorts of liquids and, perhaps, also of *solid* substances that are to be swallowed (as the patient himself told him), on account of their bringing on irritation of the fauces.†

CAUSES.—Authors differ widely in their opinions with regard to the predisposing causes of rabies. It was once believed that hot weather was productive of hydrophobia, but it results from many experiments that this is not the case. “An analysis from Mr. Bonley of reports for the six years from 1863 to 1868 gives : For the spring months, 83 cases ; for the summer months, 74 ; for autumn, 64 ; and for the winter months,

* Montreal Gazette, 22d November, 1877.

† Eve's Surgical Cases.

75. A report arranged by Mr. St. Cyr, of the Lyons Veterinary College, shows that out of 87 cases of rabid dogs admitted at the hospital, 34 came during the spring months; 20 during the summer months; 4 during autumn; and 24 during the winter months.* This shows that the hot weather has nothing to do with the development of rabies, the largest number of rabid animals occurring during the temperate months. Moreover, Mosely, who has lived in the West Indies nearly twenty years, says "that he has never known this disease in that country. Rabies was ignored at Aleppo where dogs died in great number from the want of food and water, and the heat of the climate."†

Thirst has been thought to determine rabies in the canine species. "Thus in Venice, in the last century, all barbers and coffee house keepers were obliged to keep a small tub or pan of water before their doors, particularly during hot weather, that the dogs running about the streets might drink when they wanted.‡ However, this argument has been proved erroneous by the following experiment made by some French veterinary surgeons. They obtained forty dogs, and withheld all drinks from them till they died, and not one of them exhibited rabies.§ It is generally admitted now that neither the climate, the season, hunger nor thirst can produce the disease; but I think with Mayhew that irritation or teasing, by exciting the nervous irritability of the dog, appears more likely than any physical want to develop the malady.||

There is a diversity of opinion among authors with regard to the spontaneous origin of rabies. Some, as Bollinger, say "that rabies, as all other contagious diseases, is not developed spontaneously, and that all the etiological influences as the age, sex, climate, suppressed sexual appetite, and want of freedom are neither direct nor predisposing causes."¶ Fleming is of the same opinion with regard to the etiological influences, but he thinks very positively that this disease is capable of spontaneous origin. He says: "There are few now-a-days who are not convinced that it will occasionally appear in a spontaneous manner and without any certain assignable cause. No doubt the transmission of the disease by inoculation furnishes by far the largest number of cases, and many of these, from the obscure manner in which the inoculation has been effected, appear to be due to other causes than that of a traumatic character; *but, notwithstanding, the disease must have a com-*

* Williams, quoted from Fleming.
§ Ibid.

† Mosely on Hydrophobia.
|| Mayhew on the Dog.

‡ Ibid.
¶ Mosely.

mencement."* I must confess that this argument of Mr. Fleming forces me to believe in the spontaneous development of rabies ; for the period of latency in this disease is so long that one might think that a dog has become rabid spontaneously, when he has been bitten years before. But the first case of this disease—how was it developed? It cannot have happened by contagion. It must have originated spontaneously ; and what has happened then must occur now. But, as says Williams, the sources of spontaneous origin of rabies, how produced and when obtained by the victim, are circumstances which are hidden in obscurity.

As I have already said, the chief cause of rabies is a specific virus contained in the saliva of a rabid animal, and which is introduced into the system ordinarily by the bite of a mad animal, and which may be transferred from the canine species to other animals and to man, and from man to the canine species. From experiments made in Paris, two dogs became rabid from having been inoculated with the saliva of a mad young man.† However, all cases of inoculation have not positive results ; the poison may be arrested in the clothing or medium through which the teeth pass in giving the wound. Persons and animals bitten by a rabid dog have died a short time after, when men, dogs, hogs, sheep and cats, bitten by the same rabid animal have escaped contagion for the reason above mentioned, and probably also on account of that immunity which certain persons have with respect to the most contagious affections. It results from experiments made by Hertwig, that sixteen inoculations with saliva taken from a rabid dog, either during life or soon after death, produced positive results in six cases ; six inoculations with saliva from cold cadaver, from 24 to 48 hours after death, resulted negatively in each case ; thirteen inoculations from the tissues of a rabid dog, produced one positive result ; fifteen inoculations by means of mad dogs, or by natural inoculation, produced four positive results ; five attempts at inoculation by means of intermediate vehicle (placing the subject in a stall where a mad dog had previously been kept), were negative.‡ The shortest period of latency in dogs is seven days, and the longest one hundred and fifty-five days ; in man from three days to nine months, and even ten years in some instances ; in the horse from fifteen days to three months, and even fifteen months ; in the sheep from fourteen days up to three months, and in the pig from eight or nine days, to as many months.§ Generally two-fifths of the individuals inoculated escape contagion. It will be seen by the

* Fleming on Rabies and Hydrophobia.

† Fleming.

‡ Grisolle.

§ Williams.

above statements, that the contagion cannot be propagated to man, manifers or birds, by the usual means of inoculation after 24 hours after the death of a rabid animal; and that the period of latency of this malady is not limited, and varies in different animals.

The virus of rabies exist in its most virulent form in the saliva, but we must not forget that other parts of the deceased animal are also capable of communicating the malady. There are positive proofs of this; thus Messrs. Eckel & Lafosse, succeeded in producing rabies with the blood and other constituents of the body; but the percentage of positive results in these cases is far less than with the saliva.

It was believed once that the bite of rabid herbivorous animals could not develop rabies; however, Mr. Fleming, mentions several instances of hydrophobia communicated by inoculation, with the saliva of cows, and other domesticated animals, and he says: "that the facility with which the disease can be transmitted by different species depends, besides the activity and virulency of degree of the infecting principle, upon the organization, habit, or rather nature of the deceased. Carnivorous animals generally attacking other animals with their teeth, which are well adapted for wounding and tearing, they are naturally the most successful in inoculating with the poison."*

As already stated the period of latency is more or less prolonged, specially in man; in fact it is sometimes so much protracted that some authors are inclined to think that when rabies is developed a year after inoculation, the patient has been subjected to a second inoculation which he may have forgotten. But when we read the account of cases whose authenticity cannot be doubted for a moment, we must surrender to the evidence. The *Veterinary Journal* for October gives two instances of this unusual incubative period of rabies. One is the case of a Mr. Brown, a veterinary student, "who was bitten by a mad dog the 21st of June, 1874. The 4th of August, this year, he was vaccinated; the 16th, he suffered from local irritation, but not to any serious extent; the 19th, he died presenting unmistakable symptoms of hydrophobia.† The other case is that of an agricultural laborer who was bitten on the finger in October, 1872. The 25th of June, this year, he complained of being unwell; eleven hours after he died asphyxiated, with all the symptoms of rabies."‡ These two cases are positive evidence the rabific virus can lie in the system for years. Moreover it is accepted as a fact that the period of incubation lasts for months. Why should it not be prolonged for years?

* Fleming.† *Veterinary Journal*. October, 1877.

‡ Ibid.

The *Veterinary Journal*, already mentioned in this article on rabies, says "that this extraordinary prolonged latency in man cannot be lost sight of by the veterinary pathologist, as it may serve to explain some of these outbreaks in which the scourge appears to rise spontaneously and without the intervention of a pre-existing contagion. If the virus can lie dormant for three or five years in man, why not also in dogs? And if so, need we wonder that after the cessation of an outbreak of rabies among the canine population of a district or a country, another may occur in three or five years?"*

It is said that of the human patients inoculated, those that are more likely to be affected by the disease, are those possessed of a nervous temperament, and that mental excitement greatly assists in the development of the malady. However, when we come to consider; first, that the veterinary patients, of whom we cannot say the same thing, give as many positive results when inoculated with rabific virus, as the human beings; second, that the period of latency seems longer in man than in animals; third, that the young child who is full of confidence in the doctor, called to dress his wound, and whose mind is as quiet after the patient has been dressed as it was before he was bitten, presents the same symptoms, and is as often affected with the disease, when inoculated, as the adult, it must be permitted to doubt the theory that mental excitement hastens the development of the malady, or generates another disease similar to hydrophobia.

SYMPTOMS IN DOGS.—The dog that is going mad feels unwell for some time prior to the full development of the disease. He feels nasty; vexed without a reason and very snappish; avoids annoyance by being alone. This makes him seem strange to those who are accustomed to him. The sun is to him an instrument of torture, this induces the poor brute to find out the holes and corners. His appetites are altered—hair, straw, filth, dirt, excrements, tin shavings, stones, the most noisome and unnatural substances are then the delicacies for which he longs and swallows. At this stage he will drink very freely sometimes, does not desire to bite mankind, and rather endeavors to avoid society. He takes, sometimes, long journeys, proceeding in a slouching manner, in a kind of trot, a movement neither run nor walk, his aspect being dejected. His appearance is very characteristic, and if once seen can never be forgotten. In these journeys his tongue hangs dry from the mouth. He does not look for something to bite, but, however, if anything

* *Veterinary Journal*, October, 1877.

opposes his progress he will, as if by impulse, snap. He is sometimes subjected to hallucinations, flies at some imaginary objects, as in the act of catching flies. This pantomime may be repeated twenty times an hour.* In the course of a day or two after the first manifestation of these symptoms, the characteristic signs become more marked; the desire to bite is greatly exaggerated; the pupils are dilated; the conjunctivæ red and injected; the eyes alternately widely opened with fury, and then closed in a dull but fierce manner. The forehead becomes wrinkled; the looks of the animal are terrifying and repulsive; the presence of a living object excites the rage of the sufferer, causing it to spring at and endeavor to bite it. Any shining object will bring on a paroxysm of rage and excitement, and water, if the light shines upon it, will do the same; but if placed in a dark place, or where light does not shine, the dog will endeavor to drink with avidity. Intermittent with the excitement are periods of great prostration, the exhausted animal lying down in the quietest spot he can find, insensible to all surrounding objects: when away from these things the fits of rage are not so great, indeed, sometimes scarcely observed.† The noise he makes is incessant and peculiar. It begins in a bark, which is quickly changed to a howl, which is suddenly cut short in the middle.‡ He is not afraid of the water; on the contrary, he will sometimes plunge deeply his nose into it without being able to swallow. He dies from asphyxia in from four to eight days.

SYMPTOMS IN MAN.—There is a general uneasiness, pain in the bitten part, sometimes extending to the body when the wound is on a limb. Some sleep well, but others have dreadful dreams; the appetite is diminished; the bowels are costive. These symptoms continue for a few days, but sometimes for a few hours only. Then comes the *dread of swallowing*, when it is to be present. The throat is sore, so is the head and neck. Violent fits are caused by the attempt to swallow; great horror of any one coming suddenly into the room or looking at them; they cannot bear the sight of a bright light; the wind seems to choke them. Violent spasms of vomiting, eyes are red, skin clammy, viscid saliva flowing from the mouth; pulse reaches 160. During the intervals of rest they are quite free from pain, and the conversation is generally good; some will warn their friends to keep away from them, as they are apt to cause mischief unwillingly. Death comes generally during a violent spasm from twenty-four to thirty-six hours to three or

* Mayhew on the Dog.

† Williams.

‡ Mayhew on the Dog.

four days. There is an accelerated breathing often accompanied by a peculiar noise resembling somewhat the howl of a dog when dreaming.

PATHOLOGICAL ANATOMY.—It is easily recognized by the symptoms mentioned that the nervous system is the principal seat of the disease. But we may safely say that the entire glandular substance is involved, and besides these the organs of deglutition, mastication, digestion, nutrition, respiration are acutely involved.* The specific action of the poison seems to be exercised specially on the *medulla oblongata* and *par vagum*, the branches of which lose their natural properties; hence the difficulty of swallowing, the depraved appetite, alteration of the voice, or its entire loss, as well as the convulsions of the respiratory muscles, are all due to derangement of this nerve; and as the nervous system of the animal becomes more and more deranged, complete paralysis of the respiratory muscles occurs, and the animal dies from asphyxia.†

The nervous centres are congested; so are the lungs, kidneys, muscular system and spleen, pharynx, œsophagus and stomach. This organ is filled up with all the unnatural substances taken during life, as hair, straw, wood, earth, filth, etc.

TREATMENT.—This disease is generally fatal, and there is no treatment on which we can rely for a cure, though Dr. Mosely pretends to have cured upwards of forty cases by the mercurial treatment, *provided that the bitten part had been well cauterized*. He recommends strongly his mode of treating rabies to medical men, and assures them that it is an *infallible* one. However, every article of the *materia medica* has been tried against this malady, sometimes with success, but more often without any avail. Thus hellebore has been used for a time apparently with good effects, but finally it is found no better than the other medicines. Electricity is said to have cured some cases. Chloral hydrate has sometimes been found beneficial, so have been chloroform, morphine, etc. But in rabies, as in tetanus, for one or two cases cured by a drug, ten died when treated with the same medicine. The only treatment which proves of some benefit is the *preventive treatment* which consists in cauterizing freely the bitten part. For this the actual cautery is generally used; however, it seems to me that nitrate of silver would be preferable, because it can be made to touch every part of the wound; whilst this can scarcely be done with the hot iron, and that the coagulum of the nitrate is more deep than that of the actual cautery.

* Mayhew on the Dog.

† Williams.

If the wound is deep and lacerated, the parts are to be carefully excised before the caustic is applied.

In the lower animals it is difficult to discover the little scratches that are made by the teeth, then the hair should be very soon clipped, and the caustic applied. When a dog has been bitten by a mad animal it is better to kill him right off, so as not to give him the chance of becoming rabid.

AN OUTBREAK OF INFECTIOUS PLEURA-PNEUMONIA AMONG CATTLE, AT CLINTON, N. J.

BY C. B. MICHENER, D. V. S., CARVERSVILLE, PA.

On August 16th, 1877, I was requested, by A. S. Leatherman, to visit some cows, near Clinton, N. J., the property of J. C. Cramer, which were suffering from malignant pleuro-pneumonia. Upon inquiry, I elicited the following facts :

That in the latter part of June or first of July, Mr. Cramer bought a cow from a car-load which were sold in his neighborhood, and which came from Ohio, by rail, to New York City ; from which place she was shipped to Clinton. This cow soon sickened and died; and, although she was not autopsied, it was the opinion of the gentleman who treated her, that she died from pleuro-pneumonia. At the time I was called to see the cattle, Aug. 16th, four cows, which had been on the farm for some time, were affected.

Had no difficulty in diagnosing the disease as malignant pleuro-pneumonia, and one of the animals being in the last stages of the disease, the owner was induced to let us destroy her for the purpose of holding a post-mortem examination.

On opening the thorax we discovered about one gallon of serum, in which floated large masses of yellow plastic lymph.

The lungs were fastened to the pleura-costalis, diaphragm and heart, by large deposits of this plastic lymph. After severing these "false membranes," and attempting to lift the lungs out of the cavity of the thorax, we noted that they were unusually heavy, and, upon weighing them, found that the weight was forty-two (42) pounds—they sank in water, and exhibited the dirty grey mottled color peculiar to this disease. The lung substance was firm, and the exterior was rough and thickened.

Owing to a large fibrinous deposit in one of the divisions of the left bronchii, the lung substance, back of this deposit, was of a dark purplish or black color. The trachea contained a small quantity of frothy mucous; while the other organs of the economy, were in a state of health.

From this time to the present, there has been more or less of the disease in said neighborhood.

Out of J. C. Cramer's herd of forty-two (42) cows, twelve (12) died from the disease in question, five (5) got well under treatment, fourteen (14) were disposed of and slaughtered, before having time to develop the disease; leaving eleven (11) head remaining which never had the disease, and which still remain well.

The disease was communicated to cattle belonging to Michael Frech, by pasturing his cattle in a field adjoining a lot which was occupied by the sick of Mr. Cramer's flock.

Eight (8) cows of Frech's were seized with pleuro-pneumonia; four (4) of which died, and four (4) recovered.

Mrs. Tiger, whose fields adjoin those of Mr. Cramer's, also lost one (1) cow. Mr. Hoffman, who lives neighbor to Mr. Cramer and Mrs. Tiger, lost one (1) cow. Mr. Burrell and others lost their cows. Total number of deaths, so far as reported, is twenty-one (21). Eleven (11) cows recovered under the administration of stimulants and tonics. Amm. Carb. and Ferri. Sulph., principally. To those which suffered from diarrhoea, an infusion of white-oak-bark was freely given. Average length of time sick, from nine days to two weeks.

Inoculation is being practiced; but the results of it are not yet fully decided upon, although the cases after vaccination are more mild. Two cows have died, twenty-five days after inoculation, with the disease. About 20 per cent of tails and switches are lost, from the operation; but none have yet died from inoculation. A township committee has been appointed, who, through strict vigilance, are rapidly exterminating the disease; and it is to be hoped that its ravages, which might have been stayed at the outset, will soon be checked. The following is taken from the Clinton paper:

CLINTON TOWNSHIP, *October 6th, 1877.*

Whereas: The Committee of the Township of Clinton, County of Hunterdon, have become satisfied that a CONTAGIOUS DISEASE OF CATTLE exists in certain portions of said Township, such as is contemplated by an act of the Legislature of New Jersey, approved March 14th, 1861, entitled "An Act to Prevent the Spread of Contagious Disease among Cattle and Stock;" *Therefore:* NOTICE IS HEREBY GIVEN, that said Law will be rigidly enforced in the provisions which are

herewith published ; as follows, in accordance with authority therein vested in this Committee, to be exercised under circumstances such as now exist :

Any person who shall import or drive any cattle into or through said Township (unless on permit first obtained from this Committee, or some member thereof, after examination of the case), while such disease continues in said Township, shall be liable to a fine of one hundred dollars for each and every head of cattle so driven.

Any person who shall sell or otherwise dispose of any cattle within said Township, or for importation therein, knowing or having reason to suppose the same to be subject to such disease, will be liable to a fine of one hundred dollars for each animal so sold.

And, *further*, any person who shall knowingly store the hide or any portion of an animal that has died, or been killed by reason of said disease, within five hundred feet of the premises of any neighbor, will be liable to a penalty of five hundred dollars.

By Order of Township Committee :

JOHN H. ROCKAFELLAR,
LUCAS A. VOORHEES,
GEORGE CLARK,
JEREMIAH EMMONS,
GEORGE M. FRECK.

EDITORIAL.

The question of Veterinary Education has, for some time back, occupied the attention of the different members of the profession, and specially of those who, by their position as teachers, have been most able to judge the improvements and changes which were necessary to be introduced in the different schools. Wherever we look in the writings, which at different periods have appeared in the *Veterinary Journals*, we find that all the faculties of Europe have been introducing changes, which had, for object, a more thorough education and an increase in the length of studies. England has almost entirely revised its curriculum, and though it has not been without much controversy, we read to-day, in the opening lectures of the different English veterinary schools, that these alterations are looked upon as progress, and all the teachers congratulate themselves upon the admission of the new programme.

France herself, with her thoroughly arranged and regulated course of four years—even with her internal political difficulties—loses no sight of the importance of her veterinary institutions, as an indispensable branch of her agricultural wealth, and we find that in the extract of the project of the Budget for the year 1878, an extra allowance is asked for the creation of two more professorships in each school ; and an extra sum of fifty-four thousand three hundred francs, is required for these chairs, with their adjuncts, laboratory, library, etc., etc.

Germany, which, as we have been told by our worthy correspondent, F. S. Billings, at Berlin, has been, through the exertions of the late Prof Gerlach, revolutionizing its regulations in veterinary schools, and has adopted, recently, a new state of things for the education of veterinarians; we are told through the *Veterinary Journal*, that the Budget of the German Minister of Agriculture, allots to veterinary schools and works generally, five hundred and eighty-seven thousand eight hundred and fifteen marks; of which, forty-four thousand three hundred and ninety-five are devoted to the Berlin School alone.

And so we see the old veterinary institutions of the old world improving their opportunities, each one in their way, for a better education of their Veterinarians.

Canada, we know, does also her share, by the subsidies she allows to the Montreal and the Toronto Schools.

Of course, as long as the United States will remain in the background, in the cultivation of veterinary medicine; as long as its government (general or state) will close their eyes to the importance of that branch of agriculture—no matter how the people will need, ask and look for amelioration and for elevation of the profession, and for the necessity of scientifically educated practioners—as long as this state of things last, we cannot record for the American veterinary schools, the same attempts to progress as we noticed in Europe; and if veterinary education has to be carried through private undertakings, it is to be feared that, for some time to come, the profession in this country will not make the advance that her immense wealth in domestic animals would justify.

We are pleased, however, to notice the attempt which has been made in the American Veterinary College, by the introduction, at this session, of a preliminary examination before matriculation; and the results which have been obtained show that, if even more difficult tasks were introduced, the school would not suffer. Recognized as it is—by the profession of America, by the medical faculties of New York, by the sister schools of Europe—the American Veterinary College has been anxious to show that she deserves that recognition; that she was fully aware of the necessity of preliminary education (at least) for those who were about entering their names as students, and the result obtained, is the best proof that the change was one in the right direction. Her class, which only counted eighteen students last year, has increased this year to a respectable number, and though three of the candidates were not admitted, her matriculation book records to-day twenty-two *bona*

fide students ; and is composed of young men who are fully able to appreciate the importance of their studies, and the seriousness of the task before them.

The result which will necessarily follow, will be the turning out of a better class of educated men, and more worthy of the confidence of the people. That it is a profession which will afford to those entering it social respect, satisfaction, and pecuniary return, is plainly shown by the position obtained by the alumni of the school, as all of them to-day command a practice more or less lucrative ; a practice worth from \$4,000 downward to \$1,200, and that after only a few years of labor. How many young men graduates of human medicine are there, who cannot boast of such satisfactory results ?

And still these are obtained from graduates out of what might be called private schools. What would it be if the diplomas, which the alumni possess, had been granted by a school supported by general appropriation ? by a school where, like in Europe, the labors of the teachers would be entirely devoted to the education of the students ? and would not be, in the majority of cases, obliged to resort to private practice, to provide the needs of common life.

We hope, however, that the day will come when our Government will see the importance of our profession ; when the necessity of following the example laid before us by Europe, will be realized by our Secretary of Agriculture, or our large agricultural institutions ; and that, once for all, veterinary medicine will occupy, amongst scientific bodies, the place to which it has so much claim—*second to none*. Veterinary medicine has, for the last few years, made some progress ; the foundation of veterinary schools, and their successes ; that of veterinary societies, and their works, the interest shown by all the classes of people, tell us that we may look for an important change in that direction, and that if all the veterinarians of the continent will only work well together, that change will come in a short time.

Several numbers of the REVIEW have presented to our readers articles from different persons relating to Veterinary Education. The subject was fully treated by the Principal of the Montreal Veterinary College, and answers, more or less to the point, were at times published. For our last issues and that of this month, letters were sent to us with the same title, but which were more of a personal character than we would have liked to see them, and as, after all, no one can be benefited

by such communication, and as the subject of education seems to be entirely ignored, we will announce, that Prof. Smith's letter is the last one of that character which will be published in the REVIEW. In printing it we feel obliged to say, to the Principal of the Toronto School, that we have taken the liberty to remove or alter a few expressions which we did not think ought to find place in our columns.

From the *Veterinary Journal*, of December, we extract a letter from "Rebus," to the Editor, and a little notice concerning Veterinary College in Ireland. These will prove interesting to the people of this country, and put them on guard against the number of pretenders which are assuming titles to which they have no legal claim.

REPORT OF CASES.

DEATH FROM TRAUMATIC PERFORATION OF THE RECTUM.

BY A. A. HOLCOMBE, D. V. S., NEW YORK.

On Sunday evening, November 4th, an eight year old brown gelding, belonging to Messrs. Jones & Lynch of this city, came in from a drive with flatulent colic. The usual domestic remedies, among others warm-water enemas, thrown up with a long-nozzled syringe, were administered, and the patient was relieved. On the 5th, he seemed a little dejected and off his feed, while the pulse was quite weak; but I attributed these symptoms to the large doses of tr. aconite root which he had received, and prognosticated a good recovery, providing the flatulency did not return. Toward evening he seemed quite bright, and had two moderately loose passages from the bowels. On Tuesday, his appetite was good and he seemed almost as well as usual. On Wednesday evening, a slight swelling was noted around the anus, and an inclination upon the part of the patient to rub the parts against the sides of the box; during the night he was somewhat uneasy.

On Thursday morning I was called to the case and found the patient very uneasy; the mucous membranes injected; pulse rapid, somewhat full and hard; respirations hurried; temperature $104\frac{1}{2}^{\circ}$ F.; considerable swelling around the anus; and the depression usually seen in front of the external angle of the ileum completely obliterated, by what, at first glance, would be taken for tympanites. Percussion

over the parts showed at once that the distension was due to swelling of the sublumbar region, and a rectal examination proved that this swelling extended from the base of the tail forward as far as the arm could reach. From the great effusion into the walls of the rectum; the evident symptoms of enteritis; and the continual straining, as if to rid the rectum of some obstruction; it was at once suspected that the walls of the intestine had been perforated with the syringe at time of administering the enemas. The animal was ordered some tr. opii, and death prognosticated.

Shortly after midnight death took place, and a post-mortem examination at 8 A. M. revealed extensive effusion into the entire sublumbar region, involving the rectum and other pelvic organs. The rectum had been perforated on the superior wall, about eight inches from the anus. The wound in the mucous membrane had closed, and was surrounded by inflammation and extensive effusion. In the connective tissue supporting the intestine, beneath the sacrum and over the point of perforation, was a small collection of pus. The enteritis, which was extensive, was no doubt the immediate cause of death; and the case seems particularly interesting, because of the length of time elapsing before death.

DISEASE OF THE TEETH, ETC., RESULTING FROM AN INJURY TO THE HEAD.

BY WM. BRYDEN, V. S., BOSTON, MASS.

John Wood, Esq., of Quincy, Massachusetts, sent me the head of a five year old Fearnought colt, for examination. The history of the case is as follows: The animal was well bred and, up to the time he was a year old, quite promising; about this time, an accident happened to him; being out in a lot with others, his companions left and went to the barn; he soon followed, with all speed, but the door having partly closed, before he could stop, his head came in contact with it with such force that he lay stunned for nearly two hours. In a few days he was able to be about again; but, ever afterward, he was dumpish and liked to be alone. The following winter he had two bog spavins and thrush in his hind feet, about which I was consulted; they also informed me that he drank as though there was some difficulty about his mouth or teeth; on going to the watering trough he always pushed his nose into it nearly to his eyes, then lifted his head in the air and swallowed as if in pain, after this he could drink without further trouble. I thought it

only some temporary affair connected with dentition ; but, as he did not outgrow it, I was sent for to examine him for a decayed tooth, and went prepared to extract it if found ; instead of one, I found cavities in four of the molars of the upper jaw (two on each side), thinking that these cavities might be the last points of attachment of the temporary teeth, and that age would bring relief, I concluded not to operate, as he had been but recently castrated, and was thought to be improving in condition ; when examining him, I noticed that his eyes were small and did not look right, and I found that he was unable to see directly in front but could see sidewise. His appetite was also remarkable, he would eat everything within his reach ; musty hay or wet litter, if only soft, were devoured, and when nothing else could be found he would turn round and *eat his own dung* as soon as dropped ; apparently having either *lost the sense of taste* or acquired a deplorably depraved appetite. Under the circumstances, all hope of his ever being good for anything was now abandoned ; still he had the best of care, and manifested no pain, only when taking the first mouthful of water or when eating dry oats, which he masticated very slowly. Mr. Wood's children named him "the fool," and used him for their own driving. Last summer, when four years old, he had gained in condition ; but, on several occasions, was observed to have attacks of—as they said—*heart-beating* and *want of breath* ; in one of these he fell, and lay for several minutes as if dead ; they recurred at intervals for several months, when a few mornings after a very severe attack he was found dead. I received the head some four or five days after death ; all except the eyes was in an excellent state of preservation, they appeared very much shrunken or atrophied ; on exposing the brain, its substance was found quite soft its meninges were natural *excepting along each side and under the medulla oblongata*, where there was *a greatly increased quantity of slightly congested tissue*, partly in an emphysematous condition and evidently old ; this was all I could see wrong with it. I now proceeded to examine the nostrils and mouth ; although no abnormal nasal discharge had ever been noticed, yet the schneiderian membrane, opposite the roots of both first molars of the upper jaw, was in a state of ulceration, the spots being an inch in diameter. On the mouth being opened, I found *every molar of the upper jaw and four central incisors* (I mean the two pincers and two intermediates) diseased, and having *cavities reaching from the crown to their roots*, some of them large enough to admit a quill, while others would barely admit a knitting needle, excepting at the crown ; they were largest in the first, second and sixth molars, all were filled

with food and dried, dead pulp, the walls of these cavities and the adjacent enamel and dentine, were in an advanced state of decay, of a bluish color, and in marked contrast with the sound parts ; specimens of them I gave to Mr. McEachran, of the Montreal Veterinary College. *The crowns were much darker than usual, and it occurred to me that this was caused by the debris from the gradually receding pulp not being carried off by the circulation, but left to mix with and stain the new formation of tooth in the subsequent process of—in this case—impaired nutrition.*

I regretted not having an opportunity of examining the rest of the body.

PILES.

BY THE SAME.

I was called some time ago to attend a dark brown, middle aged, driving horse, belonging to a homeopathic physician of this city. On backing the animal out, he moved his hind limbs with difficulty ; his pulse was about 50 ; and the attendant informed me that he was off his feed, and had not passed urine for some time ; on examining his bladder with my hand, per rectum, I found it full, and evacuated it by pressure ; I then gave an injection of soap and warm water, and applied hot cloths to his loins ; fearing that it might possibly be due to some injury to his spine or sublumbar muscles, I had him carefully watched. Next morning there was no improvement in his condition, and his bladder had again to be evacuated as before ; my hand was then pressed forward, but nothing like what is said to indicate inflammation of the kidneys was found, on withdrawing it, however, it was covered with pus and blood ; it may be added, that he evinced great tenderness about the anus. On again introducing my hand, *a cluster of round grape like abscesses, as large as marbles*, was found on the superior wall of the rectum, about five or six inches from the anus, there was six or eight of these in the cluster ; they were easily burst by squeezing them between my thumb and fingers, and when my hand was again withdrawn it was filled with pus and blood. A few injections of linseed oil and carbolic acid was all the treatment he received, and being soon turned out to pasture I did not see him again, although I was informed that they had not troubled him since.

CARIES OF OS PEDIS.

BY C. W. CROWLEY, D. V. S., ST. LOUIS, MO.

The patient, a roan gelding, property of the Gravois Railroad Co., was being driven one night, in the fore part of August, on one of his

regular trips, when he was noticed to go suddenly lame. The driver immediately examined the foot expecting to find a stone lodged there, as they so often do on newly macadamized roads as this was; but instead found the shoe gone (which it may be proper to state had only been on a day or two), and blood flowing from a wound in the sole, a little over half an inch from the toe. The horse was driven to the end of the trip, the lameness increasing as he went. After reaching the stable the foreman examined the foot, and found what he thought to be a wound caused by the horse stepping on one of the nails of the shoe. Thinking lightly of it, had the horse shod next day with leather under the shoe. The horse continued slightly lame for about a week, improving all along, when he was thought fit to resume his work. He was put out to make a trip. He went very well for awhile, but began to show more lameness after going a few miles. The next day, though still no better, was allowed to make a trip, and he came in still lamer. He was then let stand about a week again, the shoe being left on in the meantime, when, being no better, I was called to see him on August 18th. On removal of the shoe was seen an opening through which a quantity of dark, badly-smelling discharge escaped. The opening was enlarged, and, on probing, the bone was found in some portions to be nearly bare, and that peculiar odor of diseased bone present. I decided to cast the animal the next day, and remove enough of the sole and wall to fully expose the diseased parts—which I did, removing the sole from a point about half of an inch posterior to the opening, and about a like surface from the wall. Upon examination the bone was found diseased to a considerable extent. The inferior border instead of describing a convexity was a concavity, the said concavity being in extent about one and three quarter inches. The granulations were in some parts very thin, and were mostly of an unhealthy appearance, at which parts the bone was scraped, and a dressing of oakum and carbolic solution, one to thirty, applied with pressure. On the following day on removal of dressing the parts present a slightly improved appearance.

Same dressing, which was also repeated every day for about two weeks, with exception of using tinct. aloes and myrrh occasionally, when it was dressed less often until entirely discontinued. In about eight weeks it had all healed nicely, the horse was taking daily exercise preparatory to resuming his work, when he had an attack of enteritis and died.

ARTIFICIAL EYES.

BY THE SAME.

Reading a communication some time since in the *Veterinary Journal* relating to artificial eyes for horses, and moved largely by curiosity I ordered some, and a few weeks since received them. I inserted one over an eye that had been blind for a few years, and which was much atrophied, and was agreeably surprised at the change it wrought, removing, to a great extent, that vacant appearance present where an eye has been ruptured or, as in this case, greatly atrophied.

I first put in one that was too small, but immediately replaced it with a larger one. I had just inserted it and was inspecting it, when in came one of those smart individuals that always know what is the matter, and what to do for it. He stepped up and looked at it (there being at the time a slight flow of tears), and expressed it as his opinion that if we would just put a little white sugar in that eye, it would be all right in a day or two.

The eye remained in three weeks, retaining perfectly its bright polish, and causing no inconvenience whatever. The animal never trying to rub it. Every morning there is a slight collection of matter at the inner angle of the eye, but this used to be the same before the eye was inserted. On removal of the eye there was found behind it a small collection of matter, which was removed and the eye replaced, and has not been touched since, and is causing no more inconvenience than before.

CORRESPONDENCE.



CORNELL UNIVERSITY AND VETERINARY EDUCATION.

TO THE EDITOR AMERICAN VETERINARY REVIEW :

MY DEAR SIR: I must beg of your courtesy the privilege of correcting a misrepresentation of Cornell University in your editorial on Veterinary Education in your December issue. I do not for a moment claim that there was any intentional misstatement on your part. I must suppose that you are laboring under a misapprehension of the facts, but I feel it none the less imperative to make this correction, inasmuch as you have made a charge which, if left uncontradicted, will be accepted by all as unanswerable.

Let me, then, state explicitly that *Cornell University* DOES NOT at-

tempt to make veterinarians of her agricultural students, and never did attempt nor profess to do so. That she furnishes them instruction in veterinary anatomy, physiology, hygiene, distetics, breeds of animals, principles of breeding ; in the geology and management of soils in relation to their fodder products and to enzootic diseases ; in the principles of veterinary medicine and surgery ; in veterinary obstetrics ; and in the principles of shoeing, is true ; but this is only a part of their agricultural course, and the degree given to each student is that of Bachelor of Agriculture, not Bachelor of Veterinary Science. So much for the charge that the University attempts to make veterinarians of agriculturists.

Then as to the regrets that I am supposed to have expressed at having been accessory to the act charged. I can confess to no remorse for the sin which I have not committed. In place of condemning it, I think the "Veterinary Department of Cornell University" is of unspeakable advantage to the future agriculturists who receive their training here. I have no fear of any human being acquiring too much knowledge of the organization, hygiene and pathology of himself or his stock. In this matter we are consistent. Every student in "Cornell" must obtain a training in the physiology and hygiene of his own system. No less important is it that every stock owner should receive as full instruction as possible as to the physiology, hygiene, and pathology of his animal possessions. As all our students are taught the conditions that secure health in their food, drink, air, and habits, and are not left helpless in case of sudden accidents, such as apparent drowning, suffocation by irrespirable gases, fainting, wounded arteries, choking, etc., so none of our agricultural students are sent out without such knowledge as will enable them to select land that will prove wholesome to their stock, or to improve the insalubrious land they may already possess ; without a knowledge of how to prevent disease by sound diet and regimen, and to restore health by correcting a faulty management ; they are indoctrinated in the modes of dissemination of animal plagues and of parasitic diseases ; they are ready to relieve tympany and choking at a moment's notice, and are not compelled to leave the animal to perish while they ride off for the veterinarian ; they can help in a difficult parturition, ward off a chill and threatening inflammation, and resort to a number of other expedients which will save them many times over the money they have expended in their education, and which could not be successfully adopted after they had ridden several miles for a veterinarian and back again.

Instead of proving inimical to the scientific man, men educated in

this way are his best friends. If all our citizens were better instructed in the physiology and pathology of their own bodies, they would no longer support the great army of vampires that now sap their vitals with their blood purifiers, liver regulators, vital elixirs and panaceas in general. The agricultural graduates of Cornell University do not employ the man who cuts out the feeders of ringbones and spavins at a point distant from their seat, who bores the horns and slits the tails of all sick cattle, who finds in blackened teeth a sufficient cause for all the ills that swine are heir to, who corrects watery eyes and a host of other maladies of the horse by extracting apparent or concealed wolf-teeth, who operates by the planetary signs, who castrates cows and mares by the antiquated flank method, and who sells an infallible remedy for all kinds of worms and in whatever situation—bowels, brain, lungs, liver, spleen, kidneys, peritoneum, etc., etc. They are educated enough to distinguish, appreciate and employ sound and reliable veterinary advice, and to influence their less favored neighbors to a similar course. They are the friends of veterinary progress and of the accomplished veterinarian, and the sworn enemies of the quack and mere pretender. Allow me, then, to reiterate my faith in a sound veterinary education for farmers. The educated farmer will no more become his own veterinarian, in a general way, than he will become his own chemist; but he will ever be the best friend of veterinary science. He knows too much to cut or drug recklessly himself or to allow others to do so. Need I quote the case of the celebrated empirical lithotomist whom the surgeons instructed in the anatomy of the perineum and pelvis, with the view of adding skill to his successful boldness, but who, with his newly-acquired knowledge of the dangers to be met, could never be persuaded to operate again.

A better agricultural and veterinary education means more and better stock on the same number of acres, consequently more demand for veterinary advice and a higher appreciation of veterinary skill. Ignorance means scourging the land with successive cereal crops, the maintenance of few, poor and valueless animals, and the committing of these to the care of the ignorant and mischievous empiric. Agricultural and veterinary education must go hand in hand, and I hail the diffusion of sound knowledge and the capacity of arriving at a just judgment among our farmers, as the precursor of a higher appreciation of veterinary science. With an educated farming community, government would find it impossible to ignore our vast live stock interests, and leave them exposed to their present dangers from imported and indigenous animal plagues.

But I must not close without noticing that phase of "Cornell" which relates to the education of veterinary practitioners. Our Register has yearly announced that "in veterinary science an opportunity is afforded to students who desire it, to pursue the study of veterinary medicine and surgery further than is provided for in the regular courses of the school." This was introduced with the hope of one day developing it into a fully equipped veterinary college, and thus carrying out the desire of our founder to "found an institution in which any person could obtain instruction in any study." We did not and do not profess to have attained to our desires in this respect. With commencing and advanced classes to conduct through studies in veterinary anatomy, physiology, hygiene, pathology, medicine, surgery, obstetrics, therapeutics, jurisprudence, shoeing, etc., etc., there is more to do than any one man could accomplish. I have, however, at different times consented to conduct one class at a time through these various studies, and as a matter of fact the University has in nine years conferred veterinary degrees on two candidates. Of these two we have no call to be ashamed whether we regard them as educated men or as veterinarians. In some respects these veterinary students have had special advantages. During their first two years in the University they could compass a number of important preliminary studies, which are essentially connected with a veterinary medical course. These, botany, chemistry, physiology, hygiene, comparative anatomy, zoology, and histology could be pursued at this early stage, and prove a preliminary course of the most valuable kind. No such full preliminary course can be obtained in the average agricultural college, where one teacher usually takes the whole range of natural history. Then the last two years which are exclusively devoted to veterinary studies, like all our academic years, extend over nine months each, independent of holidays.

Even as regards time, then, our students have the advantage of those attending American and English veterinary schools. Some of these have but two years, of five months each, including the long Christmas holidays. Even those that demand a three years' course only count up three fives—fifteen months in all, from which the holidays are still to be deducted. Now, in addition to the collateral studies pursued in their first two University years, our veterinary students have two full years of nine months each, over and above all holidays, amounting to eighteen months in all, or three months more than are demanded to complete a three years' course in the American Veterinary College. Moreover, our students, having already had two years' drilling in Uni-

versity work, come to us with a habit and power of systematic application which count immensely in their favor as compared with those who have been denied these advantages.

Again, after their first two University years, our students are already so far advanced in French or German, or both, that they can avail of the elaborate text-books in one or both of these tongues, instead of being confined to the comparatively meagre manuals hitherto found on most subjects in English.

Finally, as regards your call for a full Veterinary Department in Cornell University. For this I have hoped against hope for nine long years. But "Cornell" has not at present the means of establishing such a college, and as far as can be seen, she can only hope for such a desirable consummation through the openheartedness of some public benefactor, who will endow one or more additional chairs in this department. But, if you will kindly allow me the privilege of dissent, I may say that I would use my voice and influence against its being established in a different locality, where it would retain but an empty name, while it would lose all the real advantages to be derived from a connection with the University. The name of Cornell University is not a talisman to conjure with, and for the University to lend her name to any school—medical, veterinary or legal—to be established in some distant part of the State, would be an act altogether unworthy of her history and antecedents.

In conclusion, and lest I should be again misunderstood, let me recall the subject of my letter to the *Country Gentleman*. The subject was "Colleges for the Education of Veterinarians," the occasion being the exposure of the corrupt practices in the "*Philadelphia Veterinary College*." In reflecting on these and their counterparts at Boston, I pointed out that *veterinary colleges* ought to have a better oversight, and should be removed from any temptation to such practices, by the simple expedient of making such practices impossible. I pointed out the desirability of following the leading of Europe in establishing a *National Veterinary School*, on a scale worthy of the United States, and as a means of protecting our immense and steadily growing live stock interests. I pointed out that the proposal to educate *veterinarians* by attaching a veterinary chair to West Point or to any agricultural college would be utterly inadequate to the end desired, and would simply open an outlet for a vast amount of government money to accomplish a purpose to which it was not equivalent. That we might as well attach a physician to each State Agricultural College, and thus constitute it a

medical school to turn out practitioners of the healing art. That a course like this would squander resources, lull the public mind into a false security, deny the teachers the time requisite for observation, experiment and progress, and rob the government of that sound advice and assistance which it has a right to expect from the outlay. Finally, that to place *veterinary science* and *veterinary education* in its true position, where it would be of unspeakable value to the people and to the government, a thorough *National Veterinary School* is desirable. The concluding paragraph sums up all :

“ If the government can undertake the establishing of a veterinary college, with a sufficiently extended curriculum to make it worthy of the name, it will prove an excellent investment, if properly officered and furnished; but no such good can ever be expected from the endowment of fifty separate professorships, each in a different institution, and *each expected to turn out veterinarians*. This would be the most efficient way to make the teaching superficial and imperfect, and to destroy the very possibility of observation, experiment and progress. Let us, if we can, have a National Veterinary College; but do not let us squander our means on a host of isolated chairs, which can never fill the existing void, and the creation of which will only postpone, indefinitely, that concentrated and efficient work, by which the permanent protection of our live stock may be the better assured.”

There is not one word throughout about making veterinarians of agriculturists. That was not the subject in hand, and received none of my attention. Your remarks on this subject are, therefore, entirely outside the question. I have stated, above, my views as to the value of a veterinary education to the agriculturist, and of the educated farmer to the veterinarian, in a way which, I think, cannot be misunderstood. Unfortunately, the time allowed in our agricultural curriculum does not allow of as full a course in veterinary science as I could wish the future farmer to receive. But, as it is, the course is invaluable, and I could wish to see all agricultural colleges furnishing just as full instruction in veterinary science, as “Cornell” has given to her agricultural pupils in the nine years of her existence.

Yours, etc.,

JAMES LAW.

VETERINARY EDUCATION.

EDITOR VETERINARY REVIEW :

SIR : In your April, May, June and December numbers, appeared communications from Mr. Duncan MacNabb MacEachran, of the Montreal Veterinary College, headed as above. Very little was said,

however, bearing upon the subject of their caption ; their chief import being attacks on the Veterinary College at Toronto, misrepresentations respecting a conversation between Mr. Coleman and their writer, assaults on Mr. Stalker and Mr. Duncan, and puffs of a rival institution.

You will, I trust, pardon me if I say that it seems to me you should hardly permit the use of your columns for such purposes, no matter how fanciful the title under which they may be placed. Mr. Duncan MacNabb MacEachran, must be exceedingly jealous of the Ontario Veterinary College, or he would not assail it so frequently. That he may think he has sufficient cause in the annually increasing number of the students ; the reputation it has obtained, both in the States and in Canada, for the thoroughness of its instruction ; and the success of its graduates, wherever located ; may not admit of dispute.

I have no intention of replying in the spirit which seems to have actuated the writer of these communications, believing that correspondence of that nature reflects no credit upon the authors and is injurious to any institutions with which they may happen to be connected. Advertisements under the guise of articles on veterinary education may do for the latitude of Montreal, but in Toronto they are not required. Nearly sixty students are attending the Ontario College during the present session, which is probably a greater number than can be found at any similar institution in America.

This fact, and the general favor with which its graduates have been received in the American Union and in all parts of this Dominion, are of themselves, sufficient proof that the efforts of its professors and the skill of its graduates are duly appreciated.

It is by no means gratifying to me that Mr. Coleman and Mr. Stalker have proved Mr. McEachran to have been guilty of misrepresentation, however much his conduct towards them merited the castigation ; but, it would have been more pleasing if the offence had not been committed. I confess to a weakness, which causes me to entertain a certain amount of *esprit de corps*, under whose influence I would much rather depend than offend a professional brother, wherever I could honorably and consistently do so.

There is ample room in Canada for both the Montreal and Ontario Veterinary Colleges. If the former be not so well patronized at present as the latter, all it has got to do, to receive greater favor, is to follow the latter's example, and impart to its students not only a theoretical but a thoroughly practical education. Then, and then

only, will the public be warranted in reposing confidence in its graduates.

I am, sir, your obedient servant,

ANDREW SMITH..

ONTARIO VETERINARY COLLEGE, TORONTO, }
CANADA, December 11th, 1877. }

EXTRACTS FROM FOREIGN JOURNALS.

SPURIOUS TITLES.

To the Editor of Veterinary Journal :

DEAR SIR : I am desirous of knowing whether a graduate of an Edinburgh College has the right of styling himself a "Member of the Royal College of Veterinary Surgeons, London and Edinburgh?" or, on the contrary, being a London graduate, whether he is licensed, also, to subscribe himself "Member of R. C. V. S., London and Edinburgh?"

This is done, as you know, by some veterinary surgeons ; but it looks so absurd to me that a graduate should advertise in that way simply to mislead the unwary public, making them believe he has passed both the London and Scotch schools, whether he simply holds the diploma of one college. London and Glasgow never go together ; then why London and Edinburgh ? I am sorry to trouble you with this matter, but it annoys me ; and I will be grateful for any information you can give me through the columns of the *Veterinary Journal*.

I am, sir, yours most respectfully,

"REBUS."

[We are quite aware that the practice alluded to, by our correspondent, is somewhat prevalent ; but it is not to be commended, as it is incorrect. Only those who have obtained the diploma of the Royal College of Veterinary Surgeons have the legal right to the distinctive affix of M. R. C. V. S. There is no such distinction as M. R. C. V. S. E. or M. R. C. V. S. L., there being only one Royal College of Veterinary Surgeons in the three kingdoms. We have frequently drawn attention to this subject.]—*Veterinary Journal*.

NO VETERINARY COLLEGE IN IRELAND.

Dr. Mapother, in his opening address at St. Vincent's Hospital, said : "Sir Astley Cooper was for many years, in conjunction with Sir

B. Brodie, Sir C. Bell, Babington and Bright, examiner in the Veterinary College; and its president, Coleman, he called 'for forty years his best made friend.' It is often wondered at, that, in this country, we have no institution for the study of veterinary science; and, just now, the carrying out of the cattle disease acts, give abundant work for those qualified, by examination elsewhere, in bovine and indeed in human medicine."—*Veterinary Journal*.

A CASE OF HYDROPHOBIA IN A SISTER OF CHARITY,

Sister S—— was in the country, with a sick child, where several mad dogs had been seen; one day, while promenading with a band of five children, the oldest of which was about eight years old, she was suddenly attacked by a large shepherd dog; at the sight of the brute, with his ferocious appearance, his dribbling mouth, she at once saw the danger, and, throwing herself between the frightened children and the furious animal, she resisted his attacks. She was, from the first moment, frightfully beaten, and the dog, excited by the hallooing of the children, was about turning upon them, when she resolutely sacrificed herself. Protecting, with her body, the children hanging on her clothes and crying with fright, the brave woman stepped forward to the dog and with courage attacked him. During more than ten minutes she held him, rolling with him on the ground, trying to choke him, and pushing her fist in his mouth, unminding the laceration of his fangs; only then, the dog, frightened by peasants which came to her assistance, gave up his hold to attack its new aggressors, who killed him. The sister went away, her hands and arms torn by fifteen deep wounds, and with one large artery open and bleeding. Though carefully attended by the general mode of treatment, the brave woman died shortly afterwards; happy of having given her life to save those of the five children committed to her care.—*Gazette Hebdomadaire*.

NECROLOGY.

DANGER OF POST-MORTEM OF RABID DOGS.

Mr. Moreau, Veterinarian of La Capelle (Aisne, France) has just succumbed—victim of one of those dangerous duties pertaining to his profession. Requested to make the autopsy of a vagrant dog, which had been killed in the street as being suspected of being mad, he attended to that duty without paying attention to a few scratches he

had on his hands, and without taking any precaution against the dangers of inoculation; and, unfortunately, he was not satisfied in opening the abdomen to examine the stomach of its contents, but carried his investigations into the buccal cavity; his hands thus became soiled with the saliva. Three months after, Mr. Moreau felt the first effects of the disease, and, mistaking their character, attributed the whole trouble to gastric trouble. A small dose of emetic which he tried to take gave rise immediately to the first convulsive symptoms, which were soon followed by all the other manifestations of the disease. After a suffering of two days, with alternate exacerbations and remissions in the symptoms, our poor colleague died by sudden arrest of muscular heart's contractions:—*Recuil de Medicine Veterinaire*.*

DEATH FROM THE POST-MORTEM OF A FARCINOUS HORSE.

Mr. Dezoteux, veterinary in the army, in making the post-mortem of a farcinous horse, inoculated himself with the dreadful disease. Carefully treated, during several months, he first seemed to rally, by an energetic treatment of tonic and alcoholic stimulants, to such an extent that it was thought he would entirely recover; but, after some time, all the symptoms became aggravated, and after a long agony, the veterinary profession had to count one more victim of pathological researches.—*Archives Vétérinaires*.

LETTERS RECEIVED.

T. C. Forgason, Auburn, N. Y.; Prof. J. Law, Cornell University; Prof. A. Smith, Toronto; Prof. D. McEachran, Montreal, Canada.

PAPERS RECEIVED.

J. A. Couture, Montreal. Can.; W. Bryden, Boston, Mass.; A. A. Holcombe, N. Y.; T. S. Very, Boston, Mass.; C. W. Crowley, St. Louis, Mo.; C. Michener, Carversville, Pa.; W. Cutting, Rochester, N. Y.

EXCHANGES.

Medical Record; Live Stock Journal; Hospital Gazette; Country Gentleman; Turf, Field and Farm; American Agriculturist; Scientific Farmer; Scientific American; Journal de l'Agriculture.

* Investigations have since proved that the unfortunate Mr. Moreau had, previous to this post-mortem, been bitten by a rabid dog. The question still remains how long after death will the virus of hydrophobia be dangerous, and likely to inoculate the disease.

AMERICAN VETERINARY REVIEW,

FEBRUARY, 1878.

ORIGINAL ARTICLES.

ABSCESS IN THE WALLS OF THE STOMACH.

BY THEODORE S. VERY, V. S., BOSTON, MASS.

A bay horse, about 23 years old, and weighing about 1,400 pounds, had been subject to frequent attacks of colic during the past five or six years. He had also had a cough resembling that of heaves for a long time, and during some of the attacks of colic, the cough appeared to be aggravated.

About three weeks ago the person in charge reported to me that for the previous three or four days he had had a number of painful attacks, not so severe or so persistent as ordinarily, and without the usual tympanitis.

He was furnished with an antispasmodic drench, to be given if the symptoms reappeared, and I intended to call and look at him, if in the neighborhood of the stable where he was kept. I did not see him, however, until Saturday of last week.

On Monday it appears that he was very ill with flatulent colic. It was night, and the attendant gave him some colic mixture, and applied woblens wrung out in hot water to the body. My house is over three miles from the stable, and another practitioner living near by was called in. It is stated that he gave carb. soda oz. ii in water, and repeated it during the night. In the morning two similar doses were given him.

Saturday I was called. He had eaten but a very little during the week, and had gradually failed in strength. I had him brought out of his stall. He commenced to cough, and his respiration appeared very much disturbed. Pulse about 70, distinct but short and weak.

Schneiderian membrane somewhat pale and dry ; conjunctiva slightly injected ; surfaces warm ; general appearance dull. He staggered from weakness, and coughed with considerable violence. The cough was resonant, strong, but evidently distressing. No one could approach him without detecting at once a most disagreeable odor escaping from his head. When he coughed and held his head down, about a teacupful in all of what looked to me like gruel, but what afterward proved to be a mixture of pus with bran mash, escaped from his mouth on to the floor. There was positive dullness on both sides of the chest, and an absence of respiratory murmur.

I notified Drs. Stickney and Sanders of the case, and they both saw it on that day. Sunday night he was killed, and Monday at 3, P.M., a post-mortem was held, at which were present Drs. Lyman, of Springfield ; Wm. Saunders, J. S. Saunders, Stickney, Bryden and Colburn, of Boston.

The abdominal cavity was first exposed. There were evidences of peritonitis having existed. In the cæcum and colon and in some portions of the mucous membrane of the small intestines there were traces of the results of inflammation, a gangrenous appearance.

Contents of stomach and bowels scanty in bulk and soluble. When the stomach was cut into the odor escaping from it proved to be the same in character as that noticed on Saturday.

Between the walls and covered by the mucous coat there were were found two abscesses. The recent one was discharging through a small opening through the mucous coat into the stomach, and was about the size of a large hen's egg. The other had become hardened down and was one-third less size.

Thoracic cavity at first sight showed a fine pair of lungs, free from evidences of disease. No effusion, no lymph.

On making a cross section of the trachea, and afterward a transverse section, the interior appeared gangrenous. There was some disorganization of the lung tissue around and immediately adjacent to the trachea, and bifurcations the result of congestion and post-mortem change.

The walls of the heart were flabby and atrophied. I conjecture that some of the fluids which were given to the animal, entered the trachea and caused the disturbance in respiration. So far as the apparent cause of previous attacks of colic are concerned, the examination proved satisfactory.

PNEUMONIA WITH PERICARDITIS AND ENDOCARDITIS.

A grey gelding brought here from Kentucky recently, and having had some fast work on the track, had been ailing for a few days previous to the time I first saw him, but had grown rapidly worse on that day.

11th day of December, he had a tremor over the entire body as if from "a chill," respiration short; pulse irregular, intermittent, compressible but weak, and about 70.

Membranes injected, no appetite. He got in form of a ball, carb. ammonia, dr. iii; gentian, dr. iii; opium, oz. ss; aloes, dr. ii, with directions to have him warmly clothed, legs bandaged, etc.

December 12th. At first sight he appeared better, surfaces warm, pulse about the same in number and character, except I fancied it was somewhat stronger, less irregular, and of slightly increased volume.

I did not on the whole, however, like his appearance and had him backed out of his stall for observation. He showed symptoms of what is termed laminitis, and was extremely weak and stiff, and the front feet were quite hot. On getting him back into the stall, which was accomplished with some difficulty, he got down on his knees and maintained the kneeling position for perhaps two minutes, regaining an upright posture and standing in a drawn up painful manner for some little time before equalizing the weight on the different limbs. I tried to lift one of his front feet. He could not stand on the other, and was in danger of going down again. He had been shod within a week, and had on 2 or 2½ lb. shoes. I had poultices applied to his feet, and repeated the same medicine except the aloes, and had him get dr. ii of fluid extract of belladonna twice that day, and oz. ss doses of nitrate potass, dissolved in water, twice a day.

December 13th.—Respiration deeper, but extremely laborious; pulse somewhat weaker and irregular; surfaces and extremities warmer; membranes highly injected; mouth fetid. He would eat a little spasmodically, taking a mouthful of hay and chewing it with avidity for a moment, then held it without moving his jaws for several moments, while he looked around to his right side repeatedly and straightened his head up, with ears erect and eyes protruding, giving him a wild

anxious look, which I cannot clearly describe. He stood with his front legs wide apart, and there was a constant tremor of the muscular portions of the thighs, but not of the body.

There was an extremely apparent soreness of the sides of the chest, and unnatural irritability when the hand approached the body. Percussion revealed a dullness of the lower portion of the left side of the chest ; right side resonant.

I had mustard paste rubbed into the sides of the chest, and gave in a ball, extract belladonna, dr. ii ; opium, dr. i ; gentian, dr. iii ; and continued the fluid extract belladonna and nitrate potass as before.

My diagnosis was made to-day in accordance with the heading of this article. Prognosis, death.

December 14th, 10, A. M.—He had lain down and got up again several times, appeared more irritable, and was suffering greater pain. During his sickness the evacuation of the body had not been of an unusual character, except that to-day the fæces were a little softened. His countenance had changed, but there was no drooping of the head. On the contrary, the owners considered he looked brighter. He was breathing heavily, the nostrils were collapsed except in expiration, when the false nostril became extended to its fullest capacity. The pulse was weaker and more indistinct, the front legs spread wider apart, ears erect, neck stretched, and an expression of fear and anxiety on his face. I knew that he had but a short time to live. He died at 1 o'clock.

Result of post-mortem, at which were also present Drs. Stickney, Wm. and J. S. Saunders, made at 3, P. M., the following day.

In the abdominal cavity nothing unusual was observed except the effect of cadaveric change on some of the viscera and a slightly softened condition of the liver.

In the thoracic cavity there was an inconsiderable amount of effusion, perhaps not over a quart of serum. There was red hepatization of the left lung from its lower border to its middle, extending in some portions not entirely through those portions. The left one was almost free from evidences of a similar condition.

The heart was not carefully taken away from attaching structures, sufficiently to ascertain the exact amount of effusion within the pericardium, which was, however, not great in quantity. The pericardium after being washed, showed evidences of previous inflammation, spots of ecchymosis being visible and shreds of lymph being attached to the serous membrane, particularly at the point corresponding to the apex

of the heart. The heart itself, being incised and washed, presented an unusual appearance. The auriculo-ventricular valves spread out and held to the light were turned purple, brown and red from centre to borders from ecchymosis, and there were one or two prominent ecchymosed spots on the lining membrane of the ventricles.

THEO. S. VERY.

BOSTON, December 24th, 1877.

TREATMENT OF OPEN JOINTS.

BY WM. CUTTING, V. S.

A Paper read before the Rochester Veterinary Medical Association.



I propose to give you some of my experience in the treatment of open joints, punctured or otherwise wounded. In 1843 or 4, I was foreman and assistant to Mr. Henry Rickard, M. R. C. V. S., of Penzance, Cornwall, England. Mr. Rickard was called upon to operate on a young gelding, for enlarged bursæ of the hock. The method of treatment Mr. Rickard adopted, was to pass a seton, subcutaneously, and perpendicularly, over the enlargement without wounding the sac, and blister the hock as soon as the animal arrived in the barn after the operation. I cast the beast on smooth grass with hobbles, the owner was present, Mr. Rickard was in the act of passing the needle over the bursæ, when the animal suddenly struggled, the needle entered the sac near the centre, and the synovial fluid ran out freely. The owner was pleased and said, "Now, my horse will get well. Look at the matter ov'm, Mr. Rickard." Mr. Rickard told the man that he was sorry the accident had occurred, that he was afraid it would result disastrously. The horse was led home a distance of six or seven miles, and Mr. Rickard went out, and placed the animal under treatment. He was bled, a cathartic administered, and an astringent paste was applied to the wound. The paste was made with alum, wrey-gum, myrrh and the red oxide of iron, and applied on cotton with compression, and the whole joint enveloped with linseed meal poultice, the animal lived five or six weeks, and died a miserable object. I was taught, when an apprentice, never to wound a joint, and I am opposed to injecting any substance into a joint after it is wounded. Perhaps the tincture of iodine, and even an alcoholic solution of the bi-chloride of mercury has been used with advantage, occasionally, in joint wounds, but I am satisfied that if proper treatment is used soon after the accident such

harsh remedies need not be applied, and can only be useful in neglected and exceptional cases.

One of the most common of joint wounds in London is the broken knee—in this country it is the least common. I have seen it treated different ways: one method, and perhaps the most common, was to cleanse the wound with tepid water, dress with tincture of myrrh and aloes, apply a compress of fine tow or cotton, and bandage with a figure of eight bandage; others would use digestive ointment, such as the yellow basilicon or resin ointment. While I was an apprentice I saw a badly broken knee treated with white turnip poultices entirely, and a very good cure made.

For the treatment of joint wounds it is important to take into consideration certain facts.

The first is the absolute necessity of closing the joint wound as soon as possible, so as to stop the loss of the synovia.

The second fact is, that if the synovia is allowed to flow unchecked the animal rapidly loses flesh and strength, and the wound will not heal rapidly, thus, according to this theory, the first thing to do is to form a plug by coagulating the synovia, the next apply a compress so as to bring the edges of the wound together; third, counter irritation, so as to keep the formative inflammation under control; fourth, attention to the general health of the patient. These points can be best met by first cleansing the wound; next, dressing topically the edges of the wound with tincture ferri chloride, and dry cotton to cover the wound; next, blister all round the wound with simple blisters; I do not like the compound blisters, and but seldom use them—never for joint wounds; and next regulate the general health by administering a cathartic as as often as necessary. The use of the sling is imperative in severe and especially the larger joint wounds, as the animal must be kept as still as possible.

CASE.

The brothers Doyle, farmers of Pitsford, in this county, were at work harrowing a piece of land with a spirited team of bay horses, the fore part of May, 1876. By accident the harrows were tipped up and struck one of the horses, laying open the skin and integuments to the tendons, tearing the skin crosswise on the outside of the rear hind leg the length of the wound perpendicularly about six or eight inches, midway between the hock and fetlock, and wounding the hock of the off leg in several places. The Mendon horse doctor was employed to attend him, and did so for about three weeks. During his attendance the

animal ran down in condition rapidly ; fungus or, more correctly speaking, exuberant granulations protruded from the wound on the near leg, so much so, that the doctor ligated the protrusions, and when I first saw the wound it had a very unhealthy appearance. The off hock was swollen very large, and synovia running constantly from the wound made by the harrow. The doctor, not satisfied with the number of leakages from the joint, plunged his knife into the most prominent portion of the swelling, from which, of course, synovia flowed copiously. In consequence of the rapidly failing condition of the horse, the Doyles wished the doctor to put the animal in the slings, this he utterly refused to do, saying, the animal would die, surely, if he did. The Doyles became disgusted with the doctor, and determined to come to the city for advice, and told the doctor they were coming. The doctor remarked that no matter what any advised, the horse must not be put in slings ; if he was so placed he would certainly die. On the fifth of June, one of the brothers called on me, described the case, told how weak the animal was, and wished me to go and see if there was a chance of saving him. I went and found him full as bad as Doyle had described him. I told Mr. Doyle I thought there was a chance of saving the horse if he was put in slings, so as to enable the animal to take some rest. There was no odor to the discharges, they were simply synovial.

Mr. Doyle drove me back to the city, I took out my slings and with great difficulty moved the horse from his stall to the bay of the barn, slung him, and rested his limbs. I gave the horse a cathartic, dressed each of the wounds of the hock with the tincture ferri, placed a small piece of cotton on each wound, and enveloped the whole joint with blister ointment. The next day I continued the ligation of the protuberance, and dressed the balance of the wounds with tincture of iodine, and as soon as the dressing had dried, dressed with digestive ointment. On the 7th, went out and dressed the horse again, renewing the blisters on the off hock, and found the animal full as strong, standing well in the slings, and the appetite improved. The 9th and 11th I visited the animal, washing off the blister and re-applying it. On each day that I did not see the horse, Mr. Doyle washed and greased the hock, applying the tincture ferri to the wounds, I next saw him on the 15th, blistered him again, and I began to feel confident I could save him. I had got the slough off the near leg, and the wound was healing ; I did not use iodine continuously, I sometimes dressed the near leg with white mixture, R. $\frac{1}{2}$ ounce zinci sulph., 1 ounce of plumb

acet., water, Q. S.—an excellent escharotic. The Mendon doctor saw the horse several times while under my care, and expressed surprise at my continual blistering, he could not understand my object or what my reasons were for so doing. July 23d, the animal so far recovered as to turn him loose in pasture, I visited the animal fifteen times and made, under the circumstances, a very satisfactory case; both legs are strong and not badly blemished, and the animal travels sound and well.

With regard to foot wounds, if the nail or spike enters in the centre of the sole, or frog, or nearly so, the wound is serious, and I believe should be treated on the same principles that I have laid down in this paper, that is, dress the wound with the tincture ferri, cover with dry cotton, the rest of the sole smear with slopping, and blister the coronet, repeating the blister often. I think, gentlemen, you will find if you look into this method of treating joint wounds, that you will come to the same conclusion I have, that the method as described in this paper of treating joint wounds is the true one.

ENTERITIS RARE AS A PRIMARY DISEASE.

By E. MINK, V. S.

Read before the Rochester Veterinary Medical Association.



For the first few years of my practice I used to think I had many cases of primary inflammation of the bowels to contend with, as I usually diagnosed nearly all cases as enteritis in which there was frequent pulse of fifty or more per minute, with hurried respirations, cold limbs, and injected mucous membranes, particularly when such cases resisted treatment for many hours. I am now satisfied that nearly or all such cases in which recovery took place were some form of functional derangement of the bowels other than inflammation.

During twenty years of practice I have made many post-mortem examinations of subjects that had shown the general symptoms of enteritis and died. In nearly all such cases where the conditions caused by inflammation existed, I found, on searching, some lesion that caused the inflammation, to wit, either rupture and strangulation, or twisting and strangulation.

Uncomplicated cases of spasmodic colic, I think, I have treated with almost universal success by the use of aloes in purgative or aper-



ient doses. And even when the patient evinced feverish symptoms, with accelerated pulse, quickened respirations, and reddened membranes, the aloes were not withheld. In such cases most of these symptoms disappear in from three to five hours after the aloes have been given. By uncomplicated cases I mean those that are not complicated by some form of lesion or occlusion other than mere spasm or impaction. In common with others I used to think that there was more or less tendency in most cases of colic to enteritis, and that purgative doses of aloes would increase that tendency. Abundant experience has convinced me that such is not the case. I think with Mr. Gamgee that aloes given in most cases of functional derangement of the bowels act beneficially in more than one way, first by increasing peristaltic action; secondly, by causing an increased flow of serum and mucus to the bowels, thus lubricating the parts and preventing irritation. The functions of the bowels being restored, and the fecal mass moved along, spasm disappears as a natural result. Along with and after the purgative other suitable treatment is given to meet the urgency of symptoms. Great pain is combated with some of the following: morphine and atrophine subcutaneously, or by chloral hydrate or sulphuric ether internally. Clysters of warm water are sometimes given to assist the action of the bowels. I am careful to not give morphine in sufficient quantities to arrest to any extent peristaltic action, and prefer where anodynes are to be frequently given to resort to some of the other agents referred to.

I will cite one case as an instance in which I thought at one time I had enteritis to deal with, but after thirty-three hours continuous suffering the symptoms abruptly subsided; showing, as I think, that no inflammation existed.

In September, 1872, a horse was brought by a Bostonian to my infirmary. He informed me that the horse had been idle for a couple of days while the owner was engaged in unloading a canal boat in this city. He thought it a good time to fatten him up, and fed him liberally on new oats. He soon showed symptoms of abdominal pain, and was soon thereafter brought to me for treatment. I gave him six drams of aloes in a ball, and a subcutaneous injection of two grains of morphine. This was followed with clysters of warm water occasionally. The morphine was given in about every four or six hours. His symptoms gradually grew more intense, and he continued almost frantic with pain. Pulse sixty and upwards, respirations hurried, membranes reddened, nostrils dilated, eye wild and fierce in look; was up

and down and walking around his stall continuously for thirty-three hours, when all at once his pain subsided, his bowels began to purge water and almost entire whole oats. Next day laminitic congestion supervened, which also in due time disappeared, and the patient made a complete recovery.

Now, I certainly at one time thought I would lose the patient, and felt sure that inflammation existed. But the sequel was finally sufficient to satisfy me that this opinion was a mistaken one. In this case, I think the aloes were proper as they assisted in removing the cause of his trouble. Any course of treatment that would have arrested the peristaltic action of the bowels would have been improper and, perhaps, caused death by exhaustion of the vital powers. This is only one instance of many similar cases, though one of the most severe.

It has been my practice to make an autopsy in nearly every fatal case of bowel difficulty I have treated. And nearly every one has shown some lesion or condition that treatment could not have overcome. Those that died with symptoms of flatulent colic either revealed ruptured diaphragm or stomach, or a twisting of the colon causing complete occlusion. Those that were not attended with tympanitis revealed some lesion or other in nearly every case, whereby the small intestines were strangulated. I will refer in a general way to a few cases.

In August, 1866, was called to see a colt nearly three years old, suffering severe abdominal pain with other symptoms said to generally characterize enteritis, for which he was treated. Died in twenty-four hours from the time he was first taken sick. An autopsy revealed a small rupture of the diaphragm, through which eight feet of the small intestines had escaped and were completely strangulated, and the portion shut off by the stricture were in a sphacelated condition.

In the winter of 1859, was called to attend a three year old colt that the day previous had been placed in a biting rig, and was quite restive during his restraining, rearing up, etc. He was released at night, and placed in his stall. In a short time thereafter he was heard rolling, kicking, and found suffering great pain. I attended him the next morning. The first thing that attracted my attention was an unusual hollowness of his flanks. He showed symptoms of approaching death. I expressed the opinion that he had rupture of the diaphragm, and that a large portion of the bowels had escaped into the thorax, judging from the appearance of his flanks. He soon died. An autopsy revealed my diagnosis correct, thirty-eight feet of the small intestines were in the

thorax, and gangrene as a result of the stricture. The rupture was about the size of a man's wrist.

In September, 1869, was called to see a bay mare that had been driven to a stage from Alton to Lyons, Wayne County, a distance of ten miles. She showed symptoms of sickness during the latter part of the trip, but was urged on to the end. She could with difficulty be kept on her feet until the harness was removed. She suffered excruciating pain, and presented all the symptoms of enteritis. I bled her about five quarts, and gave one and one-half pints of linseed oil, and administered two grains of morphine sulphate subcutaneously every three or four hours; also, gave frequent clysters of warm water. Died after an illness of sixteen hours. Autopsy revealed twisting of the small intestines about their mesenteric attachments, causing complete occlusion.

In the winter of 1874 I was called to attend a medium sized, stocky built black mare at Spencerport. She having been found sick in the morning. I saw her for the first time about two o'clock, P. M. After remaining with her three or four hours I gave it as my opinion that she was suffering from some form of occlusion of the bowels, and that it would prove fatal. She died within twenty-four hours from the time she was first taken sick. An autopsy revealed rupture of the mesentery large enough to admit four or five fingers. Through this opening a large quantity of the small intestines had been drawn, evidently by mere force of peristaltic motion, and were gangrened from strangulation.

In November, of this year, was called to attend a brown mare owned by a gentleman near Adams' Station, N. Y. She also having been found sick by her owner on his entering the stable in the morning. He gave her judicious treatment, still she grew worse. She had been sick at least ten hours before I saw her. Her symptoms indicated to me some occlusion of the bowels. She died within thirty hours from the time she was taken ill. Autopsy revealed twisting of the small intestines at their mesenteric attachment, with the occluded portion in a gangrenous condition.

Of course, in all these cases there was inflammation of the bowels, not as a primary affection but as a result of the lesions that existed, as indicated by the fact that in all these cases the inflammation was confined to the parts cut off by the strictures.

EDITORIAL.

GLANDERS AND FARCY.

Amongst the maladies to which the equine species is liable, there is none which is more frightful and dangerous than farcy and glanders. Its incurability, its contagiousness, and its unavoidable fatal termination have made it the subject of interest for all pathologists, and the means of its prevention the object of studies for the sanitarian; and both have obtained from the different governments of Europe laws which deal thoroughly, not only with the treatment of animals thus affected, but also with penalties to be inflicted on owners of farcinous and glandered horses, who, through a pretended ignorance or erroneous pecuniary interests, have tried to elude the strict sense of these laws. These generally require from the owners the declaration to an appointed authority, the isolation and quarantine of animals so affected, their destruction, and, as Reynal says, the defense, under the most severe punishments, of exposing for sale, to sale, or use for any kind of work, and specially to expose on public roads glandered and farcinous horses, even those suspected of being affected with these diseases. In this number of the REVIEW we give the full report of a case prosecuted by the American Society for the Prevention of Cruelty to Animals, in which a certain Edward Garson was arrested and tried for exposing a glandered horse in a public market, with the conviction and sentence to six months in the penitentiary—a punishment which the man well deserved.

While we give, with pleasure, our hearty compliments to the worthy President of the Society, Mr. H. Bergh, we cannot fail to fully acknowledge that the said Edward Garson is suffering a sentence which many others in the City of New York, and probably in other cities of the Union, deserve also. Have we any law which regulates the treatment and disposal of such animals? We would almost unhesitatingly say no, for what are the laws mentioned in the report of the trial, as enacted by the Board of Health of New York City, but almost dead letter?

Some time ago the said Board of Health requested an investigation to be made of the prevalence of glanders in that metropolis. The result showed that more glandered or farcinous horses could be found in New York City almost than in any other city in the world. The alarm was given. An order was passed by the Board, with directions that every veterinary practitioner should be requested to report to the Health

authorities any case of suspected or confirmed glanders or farcy which might come under their observation. But we do not know that this order found its way as yet out of the bureau of the Health Department. What is the result? A man has an animal which shows the unmistakable characters of either chronic or acute glanders and farcy; he goes to his veterinarian, who advises him to have him destroyed, but instead of that the poor suffering brute is generally sent out of town—in the country—to give him a chance?—yes—not of getting well, but of infecting other animals; or, he will hear of a man who cures glanders, who cures farcy, and then another opportunity for the spreading of the disease. These are facts which occur often; in fact, one similar happened but a few days ago in our own practice. What are we to do? The position of the veterinarian, in America at least, becomes quite delicate. Ignorant, or supposed to be, of these laws which require the obligatory declaration, he has no other alternative but to have the infected animal go away from his sight, and thus, to a certain extent, become an accomplice to the infection of others.

It is wrong. If there is in the drawers of the Health Department such an order as the above mentioned, why are not veterinarians and veterinary practitioners informed of it? Why are they not made obliged by law to report such a patient? By health regulations a physician is obliged to report all cases of small pox, of scarlet fever, of all contagious diseases of his practice. By these regulations stringent means are enforced to protect the health and life of people. Why not protect them as well against glanders and farcy? Small pox, scarlet fever, etc., are curable; glanders and farcy are not. Let us have this law made public, not to one city, not for a single State, but for every portion of the United States. Let every owner of such a diseased animal understand that his horse must be separated, quarantined, watched if suspected, and destroyed if confirmation of his disease is certain, and let the veterinarian be the one who will be made responsible for the declaration to the health authorities if the owner will not do it of himself, and no doubt we will soon get rid of the greatest majority of cases of glanders and farcy, which are not only so dangerous to our horses (valuable or not), but above all, so fatally horrid to the people.

CORRESPONDENCE.

THE PROGRESS OF THE VETERINARY PROFESSION.

TO THE EDITOR OF THE AMERICAN VETERINARY REVIEW:

DEAR SIR : A feeling of gratification, which I am sure will be shared by every one of your readers, induces me to ask you to publish the enclosed extract from the *Medical Examiner* :

At last, after leaving for centuries this branch of medical science to drag itself along, scarcely recognized among the liberal professions, the University of Oxford "proposes to establish a chair of general and comparative pathology," an example which will doubtless be followed by other universities, both in the Old and New Worlds. As will be seen, the *Examiner* intends devoting a certain space in their columns to comparative pathology and medicine, being convinced, "now that veterinary medicine is established on a scientific basis, the the time has come when the bonds which unite the students and practitioners of human and veterinary medicine should be knit more closely, and the two branches brought into more intimate relationship."

This grand progressive step cannot but be productive of incalculable benefits to our common science.

Yours faithfully,

D. McEACHRAN.

COMPARATIVE PATHOLOGY AND MEDICINE.

As a knowledge of comparative anatomy and physiology is essential to enable us to understand the structure and mechanism of man, so it is necessary for us to carry our researches into the diseases of animals and plants before we can unravel the complex phenomena of disease in the more highly evolved human being. And, as much of our exact knowledge of the phenomena of healthy life, or physiology, has been obtained by observation and experiment upon the lower animals, true scientific pathology, or a knowledge of the phenomena of disease, must be based upon the study of diseases and morbid processes occurring in other animals besides man. It is a recognition of this fact that has led to the proposed establishment of a Chair of General and Comparative Pathology at Oxford—a university which has been foremost in promoting the science of biology. There are many reasons why animal pathology and medicine should precede or accompany the study of human medicine. Living under more simple conditions—conditions more approaching

those of nature—the transition from a state of health to a state of disease is more easily traced, and diseased processes are more simple in the lower animal than in man. The student of animal pathology and medicine is able to command the circumstances of disease to an extent quite unparalleled in the case of man. Both the individual and his environment are, in a great measure, under the control of the observer, and by varying the conditions of life, he is able to modify the course and progress of disease. There is thus afforded him an opportunity of calling into play, of varying, or of removing, the conditions which appear to induce disease, and thus to determine the essential factors of morbid processes. In the human subject, one of our greatest difficulties is, that conditions cannot be repeated or varied at will, and thus arises the uncertainty which hedges in the study of medicine, however indefatigable and sincere may be the student. Again, in the lower animals morbid processes can be studied in all stages of their progress, for the victim of disease can at any moment be destroyed. In this way essential and early changes can be differentiated from those which are secondary and mere complications. It is the privilege of our office to prolong human life to its utmost limit, and hence, we are unable to employ the scalpel and the microscope, or the test tube, to the dead body, till such time as the original morbid processes have become greatly obscured, if not completely effaced. Such knowledge is necessarily one-sided; for, by studies prosecuted on the dead, we are often unable to discover the subtle and delicate point on which is suspended the beam, oscillating between recovery and death. It is in the domain of preventive medicine, however, that we have most to expect from veterinary medicine. Here the scientist is not only able to indicate the measures necessary for the suppression of disease, but can get legislative authority for enforcing them. From knowledge gained in this department we shall be able to apply the remedies necessary for the prevention of human diseases.

Many of the grandest achievements in physiology, pathology and therapeutics have been gained in the sphere of the veterinary physician by students and practitioners of human medicine. The more advanced position of human medical science explained this anomaly in former times. But now veterinary medicine has developed from the empirical to the scientific stage, and the veterinary profession will be expected to contribute more and more to the knowledge of our science and art. The training of the veterinary practitioner is daily becoming more comprehensive and more careful, and the fruits of this are seen in the rapid advances of veterinary science, and in the culture of those engaged in

veterinary medicine and surgery. Veterinary literature has made enormous progress during the last few years, and the most brilliant future may be predicated for it. Now that veterinary medicine is established on a scientific basis, the time has come when the bonds which unite the students and practitioners of human and veterinary medicine should be knit more closely, and the two branches be brought into more intimate relationship. Human and veterinary medicine are progressing along the path of knowledge, but they are separated from one another. Fellow travelers along the steep and rugged course, they should advance hand-in-hand, helping each other to surmount the obstacles they will have to encounter on the way. Each has much to learn of the other. Whilst the objective side of disease is sometimes studied to the greatest advantage in animals, the subjective can be investigated in man alone. It is, therefore, no less necessary for the veterinary physician to have a knowledge of disease of man than it is advantageous for the practitioner of human medicine to study diseased processes in the lower animals.

It has for some time past seemed to us that a medical journal has great opportunities in bringing about a closer union between these two branches of medicine. In its pages each could learn the daily progress of the other, and the knowledge gained in each department could be integrated to the common stock. With this object in view, we have issued a circular to the veterinary profession, informing them that we intend devoting a certain space in our columns to comparative pathology and medicine, and inviting their co-operation. We propose, in this new department, to furnish original communications, special articles and reports, editorial remarks, abstracts and extracts from British and foreign veterinary writings, reviews of veterinary literature, and news of interest and instruction. We have no intention of trespassing on the ground so well covered by existing veterinary publications, but aim rather at enlarging the area of medical literature by affording a new channel wherein the two streams may flow. In order that our department may be successful, we appeal to the active assistance and sympathy of our brethren in both branches of our common science. We are sure that each will be a gainer by extending his inquiries into the domain of the other. We, therefore, invite all who are interested in the progress of medicine to help us with material likely to advance the study of comparative pathology and medicine.—*Medical Examiner*, London.

GALLIPOLIS, OHIO, Jan. 12, 1878.

TO THE EDITOR AMERICAN VETERINARY REVIEW :

SIR : Since the summer of 1873 I have been studiously engaged in endeavoring to elucidate what, strange to say, has been an almost entirely neglected field of scientific labor—that is, the minute structure of urinary calculi. My interest, originally, was excited by the researches of Mr. Carter, whose work on the “Microscopic Structure of Calculi” is the only treatise on the subject in the hands of the profession. During the past four years I have had an exceedingly instructive experience in lithotrity, and my studies have been largely based upon the fragments my operations have furnished. Lately, however, some of my professional friends have permitted me to examine calculi which they have either removed from patients, or which have been spontaneously voided by individuals under their care, and in this way the number of specimens I have examined has been greatly augmented. I now desire to study the minute structure of certain calculi which form in the urinary passages of the horse. I do not see how I can explain the reason for this investigation better than stating the following undoubted, but little known, facts : When two saline solutions, which are calculated to produce by double decomposition an insoluble carbonate of lime, are allowed gradually and slowly to intermix in a viscous medium, there are formed by the union of nascent salt with the dissolved gum or albumen, not crystals of the carbonate, but small, firm, rounded bodies, which are possessed of a concentric and radiate structure, and which, while disposed to adhere to any surface already existing, also tend to meet and blend together, so as to lead to the construction of a laminae series. These forms of carbonate of lime I have on two occasions found in human vesical calculi—they are very rarely found in human urine—yet these structures are quite common in the urine of the horse, and my object in addressing you and your readers is, that I may induce some veterinary surgeon to allow me to examine his specimens, in order to determine whether these peculiar bodies exist in the calculi occasionally found in the bladders of horses. I will further state that the best way to send calculi to me is by mail ; that I will promptly acknowledge the receipt of specimens, and hold the same subject to the owner’s order ; and, finally, that in publishing my researches I will give due credit to every gentleman who aids me in my investigations.

Trusting that your readers may take an interest in the elucidation of this point, and aid me in the manner indicated, I am,

Yours sincerely,

REUBEN A. VANCE, M. D.,

Gallipolis, Gallia County, O.

EXTRACTS.

SANITARY VETERINARY INSPECTION—A VETERINARY INSPECTOR
OF LIVE AND MEAT.

BY C. M. WELDS.

No doubt quantities of unhealthy and even badly diseased meat is sold annually in our large cities, and particularly in the group of cities around and including New York.

It is a fact, for which we cannot be too thankful, that several of the diseases which are such scourges to the cattle of Europe and Great Britain, are much less virulent here. There is some quality in our dry atmosphere in summer, or in the zero-cold of our winters, which seriously interferes with the vitality of this very disease (lung murrain) as also of the "Foot and Mouth" disease. This should not, however, lead us to be less careful, for some day a disease might be imported which would sweep off our herds as the lung murrain did those of South Africa, where it was introduced in 1855, and in two years had traveled 1,300 miles, literally sweeping the immense wealth of neat cattle off the face of the earth. We need a

GOVERNMENTAL INSPECTION OF INCOMING CATTLE.

The people are deceived by certain requirements of the government. Orders are issued to our consuls abroad, as to certificates of health, etc., but so far as I know, and I certainly am in a way to know, a sick animal can be just as easily landed in New York as a well one, and, I think, easier. There is no barrier to the introduction of disease from foreign ports into the ports of the United States.

We had a wholesome scare two or three years ago about the rinderpest, but like soldiers under fire, though the danger is as great now as it was then, we have long since given up the idea of protecting ourselves against it. What the results of an outbreak of the disease in this country would be, no one can tell. Like a fire in the woods, which now laps up the dry leaves, and stays only in some rotten stump or hollow tree, and again sweeps away miles of heavy timber, leaving nothing but charred stems and drifts of ashes, the coming disease may go by doing us little damage, or it may well-nigh annihilate our herds. Are we ready for the experiment?

Hitherto, the American system has left the protection of the people against the introduction of disease by water, to the several States which establish more or less efficient quarantine regulations at their various ports. The natural dread of "the pestilence which walketh in dark-

ness, and the destruction which wasteth at noonday," is such that people readily submit to any reasonable quarantine regulations. In fact, they submit to anything without questioning its reasonableness. It would not be so with regulations affecting the trade in cattle. Purely mercenary motives would be roused in men, and often no little expense incurred. Owners of cattle would evade the laws if they could, and the authorities in one State or another, to avoid expense, would wink at infractions, trusting to luck that no wide-spread evil would be the result. It is not a matter for the different States, but clearly one for the general government to control with a strong, firm hand, administering the same laws on the coast of Maine as on that of Florida—on the Canada as on the Mexican frontier.—*American Agriculturist*.

ONTARIO VETERINARY ASSOCIATION.

The annual meeting of the Ontario Veterinary Medical Association was held yesterday in the Ontario Veterinary College, Temperance Street, Toronto. The profession was well represented by a large attendance of members from all parts of the Province, as well as some from the United States. Prof. Smith, the President, opened the meeting with an interesting address, in which he congratulated the members on the increasing interest taken in the association, and also the continuous improvement in the standing of the profession, and its appreciation by the public, contrasting favorably its position now with what it was in this country ten or fifteen years ago. The election of officers for the ensuing year was then proceeded with, as follows:—Prof. Smith, President; Mr. Wilson, V. S., London, 1st Vice-President; Mr. Duncan, V. S., Goderich, 2d Vice-President; Mr. Cowan, V. S., Galt, Treasurer; Mr. Sweetapple, V. S., Brooklin, Secretary. Directors—Messrs. C. Elliott, V. S., St. Catharine's; J. S. Cæsar, V. S., Port Hope; A. O. F. Colman, V. S., Ottawa; — Grange, V. S., Guelph; — Sanderson, V. S., Richmond Hill; — Burns, V. S., King; — Harrison, V. S., Milton; — Bond, V. S., Toronto. A number of new members were then admitted, after which several discussions took place on matters relating to the profession. A sum of money was voted by the association to procure medals to be awarded to the students of the Ontario Veterinary College at their examination in April. Several interesting professional cases and surgical operations were discussed, most of the gentlemen present taking part in the discussion. The association then adjourned, to meet again in Toronto during the time of the provincial exhibition. Mr. G. E. McEvers, of Buffalo, and Mr. R. M. Somerville, were awarded their diplomas.—*Toronto Globe*.

MONTREAL VETERINARY ASSOCIATION.

The opening of this association took place on Thursday evening ; there was a full attendance of members and a number of visitors. Professor Wm. Osler occupied the chair. After the usual routine business, George Parkison, Bridgeport, Conn., was called upon to read his communication on a case of tetanus with special reference to accurate clinical notes of the pulse, respirations and temperature carefully noted and systematically arranged, for which he was highly complimented by the chairman and others present. Professor McEachran was next called upon to read a paper on "Soundness and the Law of Warranty," in which he explained the different definitions of soundness and unsoundness. —*Montreal Herald*.

[The paper will be found printed in full, later in the REVIEW.]

JURISPRUDENCE.

EXPOSING A GLANDERED HORSE IN A PUBLIC MARKET—CONVICTION—SENTENCE.*

TRIAL.

Edward Garson was indicted in the New York General Sessions, by the Grand Jury, for violating Section 121 of the Sanitary Code of the Board of Health of the City of New York. (*People ex rel. Cox. v. Special Sessions*, 7 *Hun. R.*, 214.) The indictment is as follows :

City and County of New York, ss. :

The Jurors of the People of the State of New York, in and for the body of the City and County of New York, upon their oath, present :

That heretofore, to wit, on the second day of June, in the year of our Lord one thousand eight hundred and seventy-three, at the City and County of New York, in the State of New York, the Board of Health and Health Department of the City of New York, which heretofore had been, and then and there was, duly constituted, appointed and organized, pursuant to the provisions of an Act of the Legislature of the State of New York entitled "An Act to reorganize the local government of the City of New York," passed April thirtieth, in the year one thousand eight hundred and seventy-three, did direct, order, ordain, and enact, and did cause to be conformed to, the eleventh article of the act aforesaid, pursuant to the eighty-second section of said act, the Sanitary

* Published by the American Society for the Prevention of Cruelty to Animals.

Ordinances which had been then and lately theretofore adopted by the previously existing Department of Health, which said Sanitary Ordinances, so adopted and conformed, became and were called the Sanitary Code, which was duly amended on the twentieth day of August, in the year one thousand eight hundred and seventy-five, and wherein as so amended, among other things were contained, and thereafter and at the time of the commission of the offences and grievances by the person hereinafter named, and as hereinafter charged, formed a portion of such Sanitary Ordinances and Sanitary Code having the force of law, the words and language following, to wit: "That no person shall keep, retain, or allow, or employ to be kept or retained at any place within or adjacent to the built-up portions of the City of New York, any horse, ass or colt having the disease known as glanders or farcy, but shall at once report the fact to the Board of Health of the said city; and under the direction of the Sanitary Superintendent shall remove such animal in the manner designated by such Sanitary Superintendent. No animal having glanders or farcy, or any contagious disease, or that shall die thereof, shall be removed, disposed of, or exposed in any street or public place in said city, without written permit from said Board of Health, and then only in accordance with the terms of such permit."

And the Jurors aforesaid, upon their oath aforesaid, do further present: That afterwards, to wit, on the third day of October, in the year of our Lord one thousand eight hundred and seventy-seven, Edward Garson, late of the Nineteenth Ward of the City of New York, in the County of New York aforesaid, being an evilly-minded person, and well knowing and intending the premises hereinafter set forth, wilfully, wickedly, and unlawfully, on the day and in the year last aforesaid, did keep and retain at a certain place known as the "Horse-market," situated in East Seventy-fourth Street, in the Ward, City and County aforesaid, the same being a place within and adjacent to the built-up portions of the City of New York, a certain horse, which then and there had the disease known as glanders, and did not at once report the fact to the Board of Health of said City, and did not, under the direction of the Sanitary Superintendent, remove such animal in the manner designated by such Sanitary Superintendent.

And so the Jurors aforesaid, upon their oath aforesaid, do say: That the said Edward Garson, the Code aforesaid, called and known as aforesaid, adopted and confirmed as aforesaid, to wit, the part and portion thereof contained in the words and language hereinabove stated and set forth, unlawfully and wilfully, in the manner and form aforesaid, at

the Ward, City and County aforesaid, on the day and in the year last aforesaid, did violate, against the form of the statute in such case made and provided, and against the peace of the People of the State of New York, and their dignity.

Second Count :

And the Jurors aforesaid, upon their oath aforesaid, do further present : That afterwards, to wit, on the day and in the year aforesaid, at the Ward, City and County aforesaid, the said Edward Garson, unlawfully, wilfully and wickedly, did expose in a certain street and public place in said City, called and known as East Seventy-fourth Street therein, a certain animal, to wit, a certain horse, which then and there had the disease known as glanders, without a written permit from the Board of Health of said City.

And so the Jurors aforesaid, upon their oath aforesaid, do say : That the said Edward Garson, the Code aforesaid, called and known as aforesaid, adopted and confirmed as aforesaid, to wit, the part and portion thereof contained in the words and language hereinabove stated and set forth, unlawfully and wilfully, in the manner and form aforesaid, at the Ward, City and County aforesaid, on the day and in the year last aforesaid, did violate, against the form of the statute in such case made and provided, and against the peace of the People of the State of New York, and their dignity.

The prisoner, upon being arraigned, pleaded "not guilty," and was tried before Recorder Hackett and a jury, November 28, 1877.

William Herring, Esq., Assistant District Attorney, and Elbridge T. Gerry, Esq., Counsel to the American Society for the Prevention of Cruelty to Animals, appeared for the People, and Edmund E. Price, Esq., for the prisoner.

Mr. Herring opened the case for the People, and called

Alonzo S. Evans, who, being duly sworn, testified :

Q. You are an officer of the Society for the Prevention of Cruelty to Animals? A. Yes, sir.

Q. On the 3d day of October, did you see the prisoner? A. I did.

Q. Where did you see him? A. At the horse-market in Seventy-fourth Street.

Q. Whereabouts in Seventy-fourth Street? A. About half-way down the block

Q. Between what streets? A. Avenue A and the river.

Q. Look at this paper shown you, and say whether the diagram

upon the paper indicates the place referred to (diagram produced)?

A. Yes, sir.

Q. Indicate upon that diagram the place at which you saw the prisoner. A. I saw him where the star is.

Q. Did you see him there in possession of any animal? A. I saw him standing at the horse's head. I stood as close to him as I could. As I came up I heard him make the remark, "Will you take him? Eight dollars."

Q. What did the man reply? A. I then turned and went off. I had been down to the horse previous to that. I had examined the horse previous to that.

Q. How long previous to that? A. Probably fifteen minutes. I saw the horse coming down Seventy-fourth Street. I saw there was something wrong, and I followed. The horse was then being led by a boy. He stood at the entrance to the horse-market.

Q. Then you saw this prisoner afterward? A. Afterward.

Q. In conversation with another man? A. Yes, sir.

Q. And the subject of the horse was mentioned?

(Question objected to and withdrawn.)

Q. Mr. Evans, you said he was talking to another man? A. Yes, sir.

Q. What did he say? A. All I could overhear—I could not get very near the horse—was, "Will you take him? Eight dollars." A fight took place in the market, and he ran in to see what was the matter. I stepped up to the boy who held the horse.

Q. While you were speaking to him, did the prisoner return? A. No, sir; I took possession of the horse.

Q. Was the horse in the street? A. Yes, sir; he was standing at the entrance of the horse-market.

Q. This was in Seventy-fourth Street? A. Yes, sir.

Assistant District Attorney Herring:—I desire to present the diagram to the jury, indicating the position referred to in Seventy-fourth Street—the place where the horse stood being marked by an asterisk.

Q. You said you observed the condition of the horse when being led? A. I saw he was breathing very heavily. I could not tell exactly what was the matter with him; his head was drooping, his nostrils puffing. I took him to be a broken winded horse. I followed him.

Q. What time of day was this? A. About four o'clock in the afternoon.

Q. What did you do with the horse? A. I then brought the horse up with this boy. I took the horse down to our headquarters, the office of the Society, and Dr. Coleman examined him.

Q. You took him there for what purpose? A. To be examined by a veterinary surgeon.

(The witness was not cross-examined.)

Dr. Joseph Coleman, being duly sworn, testified :

Q. You are a veterinary surgeon? A. Yes, sir.

Q. Practising in the City of New York? A. Yes, sir.

Q. How long have you been engaged in such practice? A. Since 1863.

Q. You are now employed by the Society for the Prevention of Cruelty to Animals? A. Yes, sir.

Q. And were so employed on the 3d of October last? A. Yes, sir.

Q. On the afternoon of that day, do you remember having examined a horse brought to you by the last witness? A. Yes, sir.

Q. To the headquarters of the Society? Yes, sir.

Q. State to the jury whether that horse had any disease, and if so, what disease? A. I made a very careful examination of this case, and I came to no other conclusions, from the symptoms present, than that the horse had glanders. *Every symptom of the disease was present*—among them the enlargement of the sub-maxillary glands.

Q. Those glands indicate what the enlargement was? A. In conjunction with other symptoms.

Q. What other symptoms, beside the enlargement of the sub-maxillary glands, were apparent? A. Flux from the nostrils, of a peculiar character.

Q. Did it develop into any color? A. It ran into a gluey consistency.

Q. There are various stages in the disease known as glanders? A. Yes, sir ; it runs from one to the other, and assumes different forms at different times.

Q. Was this flux at the nostrils so apparent that you detected it by looking into his face? A. By examining him.

Q. How did you ascertain it? A. First by looking at it. Judging from the senses of sight and color and by feeling it with my fingers, this gluey consistency, which taken with other circumstances and other symptoms is characteristic of that disease.

Q. State anything else in your examination that indicated the

glandered condition of this horse? A. The pustules in the membrane of the nose were present.

Q. You mean the lining of the nose? A. Yes, sir.

Q. The mucous lining? A. Yes, sir.

Q. What do you mean by pustules? A. Well, the enlargement to which I refer creates ulcerations, and these were very apparent and plain enough to be seen, and those I regarded, in conjunction with other symptoms, as diagnostic and characteristic of the condition termed glanders.

Q. What do you mean by diagnostic? A. That which identifies a case.

Q. Did you make, at the time of the examination, any memorandum of your investigation? A. I did.

Q. Of this disease? A. Yes, sir.

Q. Have you that memorandum? A. Yes, sir.

Q. Will you read from that memorandum the result of that examination?

(Question objected to.)

Recorder Hackett:—Can you speak from memory exactly what happened at that time without recourse to your memorandum? A. I think I can, sir.

(Question withdrawn.)

Cross-examination:

Q. What time of the day was it? A. Some time in the afternoon; I cannot name the hour.

Q. Have you forgotten it? A. I did not make any entry of the exact hour on that occasion.

Q. Some days you have more than one horse to examine? A. Yes, sir.

Q. Do you know what day of the month this was? A. Yes, sir, October the 3d.

Q. Do you know whether you had any other horse to examine that day? A. I will tell by reference. I would not be quite sure without referring to my memorandum.

Q. How do you know you made a very careful examination of this horse? A. Because I make a very careful examination of all such cases.

Q. That is the reason you say to the jurors here that you made a careful examination in this case, because you make a careful examination of every horse brought under your notice? A. Yes, sir.

Q. How long were you examining this horse? A. Probably a quarter of an hour or twenty minutes.

Q. After examining the horse for a quarter of an hour, you came to the conclusion that he had the glanders? A. Yes, sir, I announced that conclusion.

Q. Did you announce it positively—that the symptoms shown were characteristic of the glanders? A. I said he had the glanders positively.

Q. Where was the horse when you first saw him? A. At the door of the headquarters of the Society.

Q. In the street? A. Yes, sir.

Q. Where did you take him to examine him? A. I examined him there.

Q. Was there a large number of people gathered around? A. There may have been a few.

Q. How many? A. I could not say.

Q. Was there a dozen? A. I do not know; I could not really say. I was thinking more of my case, rather, than of the people who were there.

By the Court:

Q. From the appearance of these marks on this horse—the pustules in the nostrils—in your opinion or knowledge—was that a sudden disease, or had it taken days to establish itself? A. *I believe it to have been a chronic case.*

Q. How long, in your opinion, had the disease established itself in the horse before you saw him? A. *It must have existed at least three months.*

Q. *Would any man, possessed of a superficial knowledge of horses, have made any mistake as to this horse being sick or diseased?* A. *I think not, sir.*

Edward McGinness, being duly sworn, testified:

Q. What is your business? A. I am a partner in an iron firm in Seventy-sixth Street.

Q. Do you know where the horse market is in Seventy-fourth Street? A. Yes, sir.

Q. Had you at any time prior to the 3d of October seen the horse here spoken of in this case? A. I had.

Q. How long before? A. In the market on the day previous to the arrest.

Q. Did you notice anything about the horse at that time? A. I looked at him; he was a strong, well-boned animal; he was offered very cheap. I wanted a horse; I looked at him; but I was not satisfied that he was all right. I did not know very well what was the matter, and I inquired of a friend of mine.

Q. State what you saw? A. I supposed he was not right.

Q. What was there about him? A. He was snotty.

Q. You have had horses in use a number of years in your business? A. Yes, sir.

Q. Have you seen glandered horses before? A. I don't know as I have; I cannot say; it is pretty hard for me to say.

Mr. Herring here put in evidence Section 121 of the Sanitary Code, duly certified, and the prosecution rested.

Mr. Price moved that the Court direct the jury to acquit the prisoner on the ground there was no proof that he was the *owner* of the horse in question, or that he offered it for sale, or had it in any public place.

Mr. Herring:—We are not called upon to prove that he was the owner of the horse; it is enough to show that he had the horse in his custody. The facts point to the theory of a negotiation going on.

The Court:—It is a question for the jury to pass upon, as to whether this horse was in charge of the prisoner. I, therefore, deny the motion.

(Exception.)

Mr. Price:—I ask your Honor to charge the jury that before they can convict the prisoner they must be satisfied he knew the horse had glanders.

The Court:—I refuse that proposition. I say to you, gentlemen, that if you believe this man had eyes, senses, and knowledge, it is presumed he should know what the condition of this horse was.

(Exception.)

Mr. Price:—I ask your Honor to charge the jury that before they arrive at their verdict they must take into consideration the fact that it took the surgeon fifteen minutes before he came to a conclusion in regard to the condition of the horse.

The Court: I decline to charge that.

(Exception.)

Mr. Gerry cited, upon the question of intent, *People v. Tinsdale* (10 *Abb. Pr. R., N. S.*, 374), and *Queen v. Hicklin* (3 *Eng. Law R. [Q. B.]* 375.)

Recorder Hackett *delivered the following charge to the Jury*:—
Gentlemen, the crime with which the prisoner is charged is cruelty to an animal. The offence is of a grave character, and is one of serious interest to all persons in this community. The law recites that any person having the possession of, or the charge and control of any horse, who shall permit such horse to be used while suffering from any serious disease (which is regarded by law as rendering incapable the animal, and unfit for the ordinary labor of drawing loads) shall be held guilty of cruelty to the animal, and shall be subject to prosecution and punishment. The horse, gentlemen, through disease and injuries seen done to him, appeals to the humanity of all mankind, and the Legislature of this State, with the desire to mitigate their brutal treatment, and to relieve the poor creatures who are of such inestimable benefit to mankind in all matters of life, passed the law referred to, for their preservation and good keeping, and that they should not be abused when unable to explain that they were sick or maltreated, and that they should be treated with that mercy and kind consideration which normally should exist in the heart of every man, woman and child towards their race.

The law to which I refer, gentlemen, recites as follows: "That no person shall keep, retain, or allow, or employ to be kept or retained, at any place within or adjacent to the built-up portion of the City of New York, any horse, ass or colt having the disease known as glanders or farcy; but the fact being so, the fact shall be at once reported to the Board of Health of said City, and under the direction of the Sanitary Superintendent, shall remove such animal in the manner designated by such Sanitary Superintendent. No animal having glanders or farcy, or any contagious disease, or shall die thereof, shall be removed, disposed of, or exposed in any street or public place in said City, without a written permit from said Board of Health, and then only in accordance with the terms of such permit." The evidence in this case, established by the unimpeached testimony of the complainant is, that he saw the prisoner with the horse in question after it had been led down the street by a boy. Now, gentlemen, if the prisoner was seen by the first witness to have the care and control of this horse, you have the right to assume, if his testimony shall be credited, and, I think, it remains unshaken, that he was the owner, and was in the possession and control of the horse; then, under the law I have quoted for your instruction, the prisoner is liable for the wrongful position in which it was seen and found. If the prisoner had the horse in his possession at the time, and you are satisfied, from the testimony of that witness, that at the instance of the Society

for the Prevention of Cruelty to Animals, this horse was taken to their headquarters, and there and immediately after, a critical examination was made of his condition by the veterinary surgeon, which he has stated, and the result, to you.

If you have become satisfied that the surgeon was justified by his extended and critical examination that the horse was afflicted at that time with chronic glanders, and further, that the prisoner had the diseased horse in his possession at the time (whether he was or was not the owner), then I charge you, gentlemen of the jury, as a matter of law, that it becomes your duty to convict him of the charge set out in the indictment. The case is so simple, gentlemen, that I do not feel it necessary that I should say more. The law is not blind in its practical demonstration. It appeals to your several understandings and intelligence, and was instigated by righteous and benevolent motives. The ill-usage of a horse, gentlemen, when it is my misfortune to witness it, awakens a deep feeling of indignation in my heart. I do not know how it may be with you.

The law in this regard was made for a wise and benevolent purpose. I charge you that if you believe, free from a reasonable doubt, that the prisoner had this horse in his possession while suffering in the manner and from the cause assigned, it will become your duty to find him guilty of the offence as charged. It is for you to solve whether any man, even with a superficial knowledge of its diseases—of a horse which was so marked as this one seems to have been by the testimony, would not have had some definite idea of his sick condition. The first witness says positively that the prisoner was found in the possession of the horse at the time of his arrest, and the testimony of the prosecution as to his then condition is uncontradicted. There has been no testimony offered by the defence, and it remains for you to determine whether the prisoner is guilty or innocent of the charge. The question is a simple one which is now left for you to determine.

By a Juror:—I would like to ask whether the ignorance of the Section of the Sanitary Code would make any difference?

The Court:—Mr. Juror, it would be an absurdity to take that proposition into consideration. Under such circumstances there are plenty of men who having committed crime might readily say they did not think they were doing wrong; they might commit murder on the same pretext.

(Counsel for the prisoner excepts.)

The jury without leaving their seats found the prisoner guilty.

Counsel for the prisoner moved for a new trial, on the Judge's minutes, on the ground that the conviction was against the weight of evidence.

(Motion denied.—Exception.)

Mr. Herring :—It is now my duty to move for sentence upon the prisoner, and I desire to say that in view of the frequency of this occurrence in this city, from the fact that recently a citizen died of this disease, communicated from a glandered horse, and that it is notorious that parties are speculating in this city all the time, more or less, in horses of this character, I sincerely trust that this system of fining, pursued by police magistrates shall not be adopted by your Honor, but that there shall be set the seal of condemnation upon offences of this kind, so certain and positive, that parties who seek to infract the law shall know that their punishment shall be imprisonment, and not a mere pecuniary punishment. It is time that the rights of the community should be secured by the operation of this law, which, if carried out, will speedily break up this nefarious business.

The Court :—*Did I understand you to say, Mr. Herring, that this was a contagious disease that passed from horse to man?*

Mr. Herring :—Yes, your Honor, and I will read you a number of cases in point.

“ A man, age twenty-three, was admitted into St. Thomas's Hospital. He complained of much pain in the head and became delirious, to mitigate which leeches were applied to the forehead; he then spoke of wandering and acute pains everywhere, indicating some rheumatic affection. A tumor appeared upon the hand, and another on the foot, seemingly of a gangrenous nature; the pain in the head would again return, attended by delirium, so that he was compelled to be strapped on his bed, and all while his flesh was wasting and his strength diminishing. On questioning the poor fellow, it was ascertained that he had a glandered horse under his care a month before, and that the discharge from the nose had come upon his hands. The case was now sufficiently plain; but the patient was too far gone to admit of the slightest hope. Previous to his death he said, “ I am dying, I shall die soon, but I shall die happy. I know now I am glandered—I shall die as my horses do—I shall die happy.”

A case is mentioned in the *Lancet*, of 1834, of a Mr. Norbrook, who punctured a blister on his knee with a lance with which he had previously been bleeding a horse; some of the blood remained on the blade, from this he was inoculated, and died a horrid death.

Dr. Barham, of Truro, reports a case of glanders in the *Veterinarian*, of 1840, in the person of Joseph Pascoe, aged twenty-two, resulting in death.

A young man, named P. Kelly, aged twenty, was admitted into Richmond Hospital, on the 26th of August, 1838. On admission his face presented that peculiar aspect which is so characteristic of glanders; the left half was very much swollen, tense, and shining, the redness fading away gradually, and becoming lost in the surrounding integuments. He stated that he had always been healthy, and when questioned as to the nature of his occupation, said that he had been employed for the last four months in attending horses that were glandered. He died on the 29th.

Mr. Rocher, medical student at the hospital of Necker, was charged with the dressing of a person affected, first, with chronic farcy, and subsequently with acute glanders, under which he died. In a few days Mr. Rocher showed evidence of the disease, and died glandered, sixteen days from the commencement of the disease.

An eminent English physician says: "I was called upon to attend a man named Andrew Foot, aged thirty-six, who presented all the symptoms of glanders. I could not discover any appearances of his having been inoculated, but having seen a glandered horse some time since, and thinking the above unfortunate case so much resembled that of this horse, I was induced to inquire of the owner whether there was anything the matter with either of his horses, when he told me that one of them was laid up with a bad cold. On examining the animal it proved to be a decided case of glanders. The horse died in ten days afterwards; Mr. Foot died also."

In the hospitals at Paris, according to the accounts of the medical journals, the cases of glanders among men have been less frequent than in any preceding years. Sidon, a veterinary surgeon, published a paper in France, in which he stated that *glanders was transmissible from the horse to man, causing the worst kind of ulcers*. He mentions an instance in which a horse was affected by the disease from a farrier, who had a glandered sore on his hand, which came in contact with the animal while he was giving it a ball. *The man and horse both died with the disease*.

A groom named Provost, slept in a stable, at Paris, occupied by a glandered horse. Some days after the death of the animal, Provost was attacked with the same disease, and died.

Mr. Hammerton, surgeon to the Castletown Dispensary, has placed

upon record three cases of acute glanders in the human subject, all running the same course, and terminating fatally, and all traceable to the same cause, *i. e.*, contagion from a diseased horse.

A vine-grower, in drenching a glandered horse, was bitten on the cheek; fifteen days after he died glandered.

A clear case of inoculation is that of a man named Thomas Whitaker. The poor fellow was bald-headed, and received a slight scratch on his scalp, which cost him his life. He recollected wiping the perspiration off his head with his dirty hands; and as the scratch in his scalp first showed the true character of a farcy ulcer, there can be little doubt as to the inoculation having taken place at the time of skinning a farcied horse. He survived the inoculation twenty-one days. An old, faithful and valued servant to the gentleman who owned the farcied animal, was also the subject of inoculation from the same horse.

The infection is supposed to have been conveyed by the fetid breath of the animal while the poor man was in the act of giving some mucilage of linseed to the horse a few hours before his death. A few hours after the death of the horse the man complained of being unwell, and of having pain in his knee. At first the pain was regarded as rheumatism, but ultimately proved to be that of farcy, as that disease showed itself in its true character and virulence, which ended the suffering patient's life on the twenty-second day after he had inhaled the fetid breath of the animal.

Within the last few years two veterinary surgeons—one residing in Walworth, and the other in Wolverhampton—are reported as having died from inoculation of glanders. This terrible disease is not often seen in Scotland, but very frequently in England, and still more so in Ireland. From the latter circumstance, the malady is often found to be imported about the west coast of Scotland. London has always been renowned for the prevalence of glanders among its omnibus, cab and other horses. A very strict supervision is maintained, and all glandered horses are destroyed when discovered; but, nevertheless, we can state on good authority that the omnibus horses of London have suffered very severely from this disease, and do so still. The partial measures adopted by companies are not sufficient to eradicate it, and the "glandered night team" is not altogether a thing of the past. The danger to human life is so great that we feel happy to seize an opportunity to urge the adoption of the most effectual measures for the suppression of any practice which tends to prolong the life of the glandered horse.

Mr. J. Burns, a grocer, in Baltimore, died a horrid death in that city, a few days ago, in consequence of poison communicated to his system from a horse afflicted with glanders. During the administration of medicine, Mr. Burns thrust into the animal's mouth his hand, a finger of which had been previously cut, and the flesh laid open. Through this wound the virus was absorbed, and mortification supervened. A surgeon was called upon to amputate the diseased member. Perceiving, however, that the poison had penetrated to every portion of the unfortunate man's system, he declined performing the operation, and stated that no earthly skill could save his life. After lingering in great agony, death closed the scene.

In view of these facts, with reference to the ability of communicating this disease from the horse to man, and in view of the additional fact that this nefarious business is continually indulged in, I feel justified in moving for the severest penalty.

Mr. Price :—While I have been practising in this Court I have never known a case, presented for the first time, where the party charged with the offence has been punished with imprisonment. The first offence is generally regarded as cautionary. The evidence against this man is very slight, so slight, indeed, that I did not believe there was sufficient to convict him. He tells me that he bought the horse only half an hour before he was taken up, that he was going to send him to the skinner's. The horse spoken of by the witness McGinness is not the horse for having which this prisoner has been tried ; that horse can now be seen working in South Fifth Avenue. I think, under the circumstances, it is very hard that this man should be selected to be sent to the Penitentiary, and for what reason I cannot see.

If it took the surgeon fifteen minutes to ascertain whether the horse had glanders or not, certainly a casual observer could not determine that question in less time. Surely he could not say at a glance what the disease was : it may have been a cold, which would, perhaps, cause the horse to have a running at the nose. A violent cold has oftentimes the effect of producing a thick mucous running at the nose, sometimes yellow and sometimes green. The best evidence of a horse having glanders is from the sores on his legs. This horse was not in that state, whereby a casual observer may have noticed it. The defendant had only traded another horse, for which he got fifty dollars and this horse. He was about to send the horse to the skinner's when it was seized. He did not know he was committing any crime. He states further—and I shall ask the officer of the Society to contradict him in

Court, if he can—that he did not arrest this man at all. He arrested the boy, and took him about three-quarters of a block, when this defendant manfully came forward and asked, “What do you arrest this boy for? The horse is mine.” I do not see how Mr. Herring can ask for the full measure of punishment that the law requires, in view of the fact that there was hardly sufficient evidence to convict the accused.

Mr. Herring :—I want to say in reply simply that the plea that this prisoner should not be imprisoned because this is the first case that has come before this Court under the Sanitary Code is absurd. This Court is one of the courts of the people. Case after case has gone to the Court of Special Sessions, and prisoners get off with light fines, and are often excused through sympathetic interference. I do not want to impugn the motives of the Justices sitting at Special Sessions, so far as the administration of the law is concerned, but I think the time has arrived when protection should be afforded to the people by the enforcement of this law.

The prisoner was remanded for sentence until Friday, November 30th. When the prisoner was called for sentence, Mr. Price stated to the Court that he had moved for a new trial, which motion had been denied.

The Court :—And you got your exception.

Mr. Price :—Yes, sir. Your Honor, this is a poor young man, who has a wife and four children. He has never been known before to have had in his keeping a horse with glanders. The learned District Attorney read a great deal as to the evils which result from the spread of the disease. The cases he has cited are English cases, for I have not heard of an American one.

As this is the first case that has come before your Honor, and from the fact that this young man states he had the horse in his possession only a little time, and that he was going to send him to the skinner’s, I trust your Honor will not impose imprisonment upon him. Should he, however, after this, continue in this practice, he must expect to be punished as the law directs.

Mr. Herring :—I have only, your Honor, to supplement my previous remarks by saying this man was evidently in the horse business, and that he knew precisely the nature of the animal he had in charge.

There is nothing to show that this man was not willing to take any chance to make money, either from glandered horses or not. I am sincere in my conviction that it is your Honor’s duty to imprison this man.

Mr. Price: He has never been arrested in his life for cruelty to

animals. He is a man who supports his wife and family, and it is not true this man is a bad character.

Recorder Hackett sentenced the prisoner to be confined in the penitentiary for the term of six months.

RUSSIAN REMEDY FOR HYDROPHOBIA.

A correspondent in *Land and Water* gives the following Russian remedy for hydrophobia : In Saraton the inhabitants collect the larva of the rose beetle (*cetonia aurata*) which are chiefly found in the wood ants' nests. The grubs are gathered in the spring, placed in earth, and their change or metamorphosis watched for. When this takes place, they kill the beetles and dry them. The powered insect must be kept in hermetically sealed bottles, or the dried beetles may be kept in sealed pots, and reduced to powder when wanted. Three beetles, powdered, is considered a dose for an adult, given immediately after the bite. One for a child and five for an adult in which the disease has declared itself. The effect is to produce a long sleep, which must not be interrupted. The bite is also treated surgically.

The beetles caught on flowers are not so beneficial; they must be secured in the larva stage, and killed directly after they attain the imago. Some of the Russians give their dogs occasionally half a beetle as a preventive.—*Scientific American*.

EXCHANGES.

Scientific Farmer, Boston ; Country Gentleman, Albany ; Scientific American, N. Y. ; Medical Record, N. Y. ; American Agriculturist, N. Y. ; Hospital Gazette, N. Y. ; Live Stock Journal, Chicago ; Turf, Field and Farm, N. Y. ; Revue für Thierheilkunde und Thierzucht ; Proceedings Medical Society of Kings County.

NEWSPAPERS RECEIVED.

Montreal Gazette, Toronto Globe, Live Stock and Western Farm Journals.

COMMUNICATIONS RECEIVED.

J. C. McKenzie, Rochester ; Theo. S. Very, Boston ; D. McEachran, Montreal ; J. T. Duncan, Goderich, Canada.

SPECIMENS

SENT TO THE MUSEUM OF THE AMERICAN VETERINARY COLLEGE.

- 92, 93, 94, 95. Intestinal Calculi.....J. L. Robertson, M. D. V. S.
- 96. Lower Jaw of a 22 years old Horse.....S. S. Field.
- 97. Axis and Third Cervical Vertebrae, showing
partial absorptionE. F. Thayer, V. S.
- 98. Three months Fœtus of Cow.....W. J. Coates, V. S.
- 99. Parasitis from Heart of DogB. McGinnis, V. S. E.
- 100. Ascarides Lumbricoides (Horse).....W. J. Coates, D. V. S.
- 101. Fœtus from Mare.....J. O. Ferris.
- 102. Intestinal Calculus.....P. Nostrand, D. V. S.
- 103. Natural Preparation of Muscles of Antibrachial
Regions.....I. B. Rogers.
- 104. Organized Pleuritic Adhesions between
Lung, Pleura and Ribs.....J. S. Saunders, D. V. S.

AMERICAN VETERINARY REVIEW,

MARCH, 1878.

ORIGINAL ARTICLES.

PLEURO-PNEUMONIA.

INOCULATION.

By D. E. SALMON, D. V. M.

NATURE OF THE DISEASE.

Pleuro-pneumonia is essentially a contagious fever, the local manifestations of which are the inflammation of the lung tissue (pneumonia), and the membrane covering these organs called the pleura; it consequently receives its name from the organs in which the more apparent alterations are found, a name which is unfortunate in some respects, at least if we do not prefix the term contagious to it, as it attracts the attention of the public from the real nature of the disease—the contagious fever—to the local manifestations or symptoms of it, *i. e.*, the inflammation of the lungs and pleura. The disease is confined to the bovine species, and is not communicable to any other, though, as with most contagious fevers, other animals or men may carry the contagious germs from one herd to another. When we consider that by far the larger portion of the animals exposed to the contagion contract the disease; that the germs may be carried a considerable distance in the air; that the latent period or incubation of the disease extends from six weeks to several months; that animals may be spreading the disease for several months before any symptoms whatever reveal its presence; that those affected are useless for a long time; that a large part of them ultimately die; that many of those which recover are of little value afterwards; that those animals which have apparently made a complete recovery may still transmit the disease to

healthy ones ; and that, finally, stables once infected cannot be freed from the contagious germs in less than three months, and are not safe for six months or a year, we can understand why this is one of the most insidious and dangerous of diseases, and why its extinction requires the utmost care and most rigorous sanitary measures. This disease is not indigenous to America, and there is no reason why our farmers should be made to suffer the terrible losses which will most assuredly follow as soon as it spreads over a little more territory. When first introduced, the disease could have been easily stamped out ; but neither the general government nor our State legislatures, with one or two exceptions perhaps, would take the proper steps to accomplish this, principally because loud-mouthed ignoramuses were continually asserting the mildness of the disease, its curability and its non-contagiousness.

INOCULATION.

I cannot go into a discussion of these questions in this communication ; but I stand ready to prove each and every assertion I have made, if it becomes necessary. The first duty is with the general or State governments to stamp out the disease, but if this duty is neglected, then it becomes the duty of farmers to protect themselves by having animals exposed to the contagion, or those likely to be exposed, inoculated, and thus save themselves from loss.

It would be interesting as well as more satisfactory to the general reader if I could give the complete history of inoculation, with detailed results of the many experiments made in the investigation ; but the space which this would require makes it necessary for me to pass it in silence as well as many other points connected with the subject. I shall, therefore, confine myself to what is strictly practical and essential.

PATHOLOGICAL RESULTS OF INOCULATION.

The introduction of the virus into the tissues of healthy animals has produced the most varied results. In some cases there has been little if any more disturbance than would be expected from the wound made to receive the inoculating material ; in other cases there was considerable swelling and inflammation, and the formation of abscesses at the point operated on ; again, dry gangrene manifests itself with results varying with the point affected ; while, at times, gangrenous tumors have appeared near to, or at some distance from the point of inoculation, either causing serious disturbance of the health, or de-

stroying the life of the animal ; finally, purulent affection (septicæmia) has occasionally followed with even more fatal results. As I shall attempt to show, however, these complicated and fatal results have generally resulted from the use of improper inoculating material ; from improper methods of inoculation, or from improper care of the animals.

WHERE AND HOW TO INOCULATE.

Inoculations have been made in various parts of the body, particularly in the dewlap, nose, ear, root and tip of tail ; but, from the many complications which I have just mentioned as following the operation, the tip of the tail is now universally accepted as the safest point. If unhealthy tumors form, a small part of the organ can be amputated without trouble or danger ; if dry gangrene results, the loss of a few inches of the tail is of little consequence ; and being further from the vital organs, the inflammation, gangrene, &c., is less apt to extend to them.

The greatest care must be exercised in selecting and preserving the virus. Formerly it was very common to use the purulent discharge from the tail, or the liquids from the lungs in the last stages of the disease, or even the serum from gangrenous lungs, while, even at the present time, dairymen inoculate their own animals by binding pieces of the lung on wounds made in the tail, and still others go so far as to preserve such virus, and use it after it has decomposed and become fetid. It has been shown, again and again, that serious complications and a high death rate invariably follow such careless methods. The French commission, which inoculated with the liquids taken from the lungs of animals in the later stages of the disease, lost over eleven per cent. of the animals ; while, when the liquid is obtained in the earlier stages of the disease, and properly preserved, the loss should be less than one per cent. When purulent matter is used, or that which has decomposed by keeping, or where slices of lung are kept applied, purulent infection is a very common result. It is, then, a matter of the utmost importance to use proper virus, and I shall, therefore, describe in detail the methods of obtaining and using it.

M. Boulay, of Aresnes, France, and his colleagues in the same district, have probably been the most successful of any who have practiced inoculation ; of 728 animals inoculated, not one died ! He thus describes the manner in which the virus was obtained and the animals inoculated :

“Such portions of the lung as show red hepatization are pressed

between the hands; the quantity of liquid obtained is always more than is required for the inoculations. This is put in a saucer or bowl, and allowed to stand a short time, to allow any solid matter to settle to the bottom; on no account should it be allowed to undergo any alteration. The animal to be inoculated is held by the head; the hair is cut from one side of the end of the tail—habitually the right—then the skin is incised with the bistoury to a length of one or two centimetres ($\frac{1}{2}$ to $\frac{3}{4}$ of an inch). With a teaspoon some of the upper part of the virus is taken, so as not to disturb the solid matter at the bottom; the liquid is placed in the wound made at the end of the tail, and this is held up for one or two minutes by an assistant, to allow the absorption of the virus. The others are then inoculated in the same manner.”

He states as the advantages of this process, that there is less risk of getting solid portions of the lung in the liquid; that a mixture of all the liquids in the organ are obtained (he thinks that some of these are inert); that the instrument is not charged with solid matter, as is the case where it is first plunged into the lung and then into the animal's tail; that, as there is more liquid than is absorbed, when the tail is dropped this falls to the ground, washing away any solid matter that may by chance have found its way into the wound. This solid matter, he says, not being absorbed in the fresh state because of the size of its particles, becomes putrid, and poisons the organ in which it is placed, and, finally, the animal itself.

Mr. Gamgee's method for obtaining the virus may be preferred by some. He says: “The selection of proper virus should be intrusted to veterinarians, who can detect the various stages of the disease. It is during the first stage of a mild case that the interlobular tissue of the lung is found distended with a yellow gelatinous serum, which is fluid so long as the lungs are hot, and is not readily contaminated by other inflammatory products and blood. When a large portion of lung has been so far consolidated as to present an almost uniform dark red or purplish color, it should be discarded, and especially in cases where a piece of the organ has become gangrenous and detached, or where liquid in the cavity of the chest and around the lungs is decidedly fetid. . . . The lung is placed on a tolerably wide strainer, or bits of wood, over a clean stoneware, glass or porcelain dish or bowl; it is cut in various directions, and a stout piece of cloth or flannel is placed over the whole to confine the heat, and prevent dust from falling on the lung or liquid. It is better to place the dish or bowl over a

warm water or sand bath at 100 degrees, so as to prevent gelatinization. In a short time, according to the condition and quantity of the lung, a sufficient quantity of clear, yellow colored liquid is obtained. Sometimes blood accidentally tinges the material, and this is not necessarily a disadvantage." This liquid should be used as described in the above quotation from M. Boulay.

In case it is desirable to preserve the virus for a time, this should only be done by hermetically sealing in glass tubes; and, then, before using, it is better to examine it with a microscope to see that it has undergone no change. As this can only be done by the experienced practitioner I will not go into particulars concerning it; it is merely mentioned to put cattle owners on their guard against those pretenders who, as Mr. Gamgee says, "bottle up anything and everything to secure a fetid compound." The fresh liquid should be used if possible.

The inoculation should be practiced as soon as there is reason to believe the herd has been in danger of infection; the stables and yards should be kept clean and well-littered with straw to prevent dirt, urine or manure from getting into the wound. These are the only precautions to be observed that have not already been mentioned.

SAFETY OF INOCULATION.

I will first give M. Boulay's experience. After stating that of 728 inoculated by himself and colleagues none were lost, he says: "In Belgium the local inflammation which sometimes results at the end of the tail no longer terminates in death as formerly, and when the operation is performed by certain veterinarians, death is no longer apprehended in any case. To avoid danger, they simply recommend an inspection of the inoculated part several times a day; if the swelling is greater than usual, or if an unhealthy tumor forms, the tail is at once cut off above the inflamed part. This precaution is sufficient to prevent any unfavorable termination. When, by neglect of the attendants, the inflammation is allowed to reach excessive proportions, deep and long incisions are made from above, downward, and cauterized with an iron at a white heat."

Generally, when the end of the tail drops off, it is without attracting any one's attention: in the four cases of this kind which M. Boulay observed, there was no swelling, and the animals fed well, and were fattening at the time. The loss appeared to result from dry gragrene, but was so slight as not to change the ordinary appearance of the

organ. *All the animals inoculated preserved perfect health, and those intended for butchering never stopped laying on fat.*

Mr. Gamgee says : "Another objection, which has led of late years to the practice being checked among the cow feeders of Brooklyn, is the sloughing of the tail, and the animals splashing blood and matter from their sore tails into the milk cans. All this arises from the operation being performed by persons who know nothing of the precautions to be used, and especially of the proper selection and preservation of the virus. Accidents will happen, but out of nearly two thousand inoculations, I have had a loss of less than one per cent. by death, and under five per cent. of the tails have lost their tips."

If properly performed, then, we may add, inoculation has no influence on general health of the animal ; it may be performed on milking or fattening animals without prejudice to their appetites, or even on cows about to calve, without danger.

THE ADVANTAGES OF INOCULATION.

Inoculation is now resorted to in nearly all countries to stop the losses from this disease ; and it has proved by far the most successful means of combating it, excepting, of course, the slaughter of infected animals, and disinfection and isolation of infected premises. Gamgee says : "It is impossible, and indeed it would be superfluous, to give a detailed account of the thousands and tens of thousands of cases which have led to the almost universal opinion that inoculation is the best means in the majority of instances to check the ravages of pleuro-pneumonia." Dr. Röhl says : "Persons who have had occasion to make observations in countries where the disease is present almost continually, as Belgium, Holland, parts of Italy, and Northern Germany are almost all favorable to inoculation, and say that since it has been practiced, districts and stables which were formerly never free from the disease, have been completely delivered from it, and that it is excessively rare that an animal inoculated with success is attacked with pleuro-pneumonia." M. Boulay, from whom I have already quoted at length in regard to the outbreak of 1873, in France, say, in regard to inoculation as a means of combating the disease, "Our success was complete." Only one or two per cent. of the animals successfully inoculated contract pleuro-pneumonia afterwards, if exposed to the contagion.

It is a matter of national importance that the extension of this disease be checked at once, and I have written thus at length in regard

to inoculation, because I am convinced the time has come to practice it; and I hope every cattle owner, from Connecticut to Virginia, will lose no time in inoculating his animals when there is danger of becoming infected.

“INFECTIOUS PLEURO-PNEUMONIA.”

In last week's *Ploughman* was published an article entitled “An Outbreak of Infectious Pleuro-pneumonia among Cattle at Clinton, N. J.” We are glad to learn that New Jersey has “An Act to prevent Contagious Diseases among Cattle and Stock,” and we hope the Township Committee will be able to exterminate the disease. If, however, the condition of trade between the dealers and farmers of that section is the same as in Massachusetts, we doubt if the committee will be successful.

In this State near the cities a large quantity of milk is produced which is sold at the farm to dealers who have regular customers to supply daily, consequently it is important to keep up a given quantity; to do so, it is necessary, as the yield of some of the cows diminish to change the stock. The dealer is notified to furnish one or more new milch cows. He in the regular course of business, purchases one or more in a town twenty miles distant, others in adjoining towns, and sells or exchanges them to the milk raisers. The point is this, unless the committee have sufficient power to trace and watch every animal sold from infected herds, whether in or out of Clinton, in many cases the most important link in the chain of success is lost.

INOCULATION.—Recent investigations seem to prove that the severity of the disease is mitigated by vaccination, but when, as in the present case, it could be easily stamped out, it would seem to be the best method, as well as the most economical. In England, during an epidemic of small pox in sheep, vaccination was undertaken, but after a brief trial the stamping out process was resorted to with complete success. But if the malady should get so thoroughly disseminated as to render it impossible to trace it, then inoculation is justifiable. Another point of the greatest importance is, Did the cow bought by Mr. Cramer communicate the disease to his herd? If she did, was she brought from Ohio? If the answer is in the affirmative, it is a condition which should cause alarm. We were aware that a few years since

pleuro-pneumonia prevailed in Baltimore, and that active measures were taken to exterminate it. If, however, it exists in the Western States we fear that it will be scattered far and wide.

If the States where the disease now exists will exterminate it, and Congress enact a stringent quarantine law, the malady which has already cost England hundreds of millions of dollars, will be prevented from gaining a foothold on our shores.—*From the Ploughman, Boston.*

RECOVERY OF CATTLE AFFECTED WITH CONTAGIOUS PLEURO-PNEUMONIA.

By E. T. THAYER, M. D. V. S.,

Member of the Massachusetts Board of Commissioners on Contagious Diseases among Cattle.

In the January number of the REVIEW is an article entitled "An Outbreak of Infectious Pleuro-pneumonia among Cattle at Clinton, N. J.," by C. B. Michener, D. V. S.

It is gratifying to know that the authorities are taken active measures to check the spread of the disease. In the eighth paragraph is the following: "Out of J. C. Cramer's herd of forty-two (42) cows twelve (12) died of the disease in question, five (5) got well under treatment," etc.; and in a subsequent paragraph he says "*they recovered.*"

Now what we wish to learn is, what is meant by recovery; is it that the lungs are restored to their normal condition, that no part is destroyed? If it proves to be so, it will be entirely different from the results in this State. During the prevalence of the malady in Massachusetts, from 1859 to 1866, many opportunities occurred to examine the lungs of animals, both in the acute and chronic stages, some of which had been kept eighteen months after supposed recovery. In every instance there were found cysts containing lung tissue, or in a more advanced stage, pus, and still later, cheesy matter. An incident occurred in our investigations bearing upon the subject of recovery, which is worth relating.

The legislature of 1863, through the opposition of certain persons, refused to appropriate a sufficient sum of money for the Cattle Commissioners to perform their duties, consequently they resigned. According to the statute it was left in the hands of the municipal authorities of the towns and cities.

As soon as the cattle owners discovered this they hurried their cattle off to the neighboring State of New Hampshire, saying "that all the cattle needed for their recovery was the pure air of the hills and pastures."

In due time it was announced that the disease had broken out in that State. Considerable alarm was excited, and a Board of Commissioners was appointed. The new Massachusetts Board resolved to visit and confer with the New Hampshire Commissioners, in order to effect, if possible, a concurrence of action of the two boards.

On our arrival we were received by a number of the New Hampshire Commission, who invited us to visit a farm where there was a pair of oxen, one of which was sick, the other *had recovered*. When we reached the place we found forty or fifty farmers and cattle owners present to witness the proceedings. At that time no appropriation had been made by the legislature. Accordingly a subscription paper was passed around, insuring an indemnity to the owners in case the legislature failed to respond.

Sixty dollars were obtained, and the ox was killed. One lung was found to be entirely solidified. I then requested that the other should be slaughtered, physical signs revealing existing disease, but it was with considerable difficulty that a sufficient amount could be obtained by subscription, because the animal "had recovered." He stood in the yard, ruminating, apparently perfectly well. The farmers said that "it was too bad to waste so much property."

Finally the ox was despatched. After removing the ribs, slight pressure was applied to the anterior portion, and the knife inserted into the posterior. A column of pus, probably not less than a gallon, escaped. The lung was then removed, and found to be entirely separated from its investing membrane.

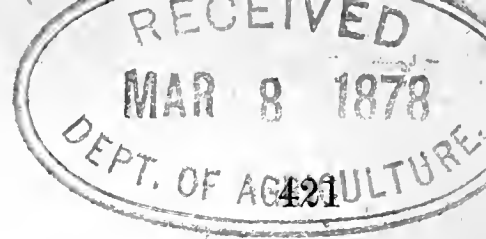
Undoubtedly this did much towards bringing about unity of action between the two States, and by which the malady was effectually stamped out. Much of the opposition with which the Massachusetts Commission had to contend, was caused by the reports that the cattle would recover. I trust that my friend, Dr. Michener, will embrace every opportunity to demonstrate the incurability of this disease, and become convinced that the stamping-out process is the most effectual and economical method of treating contagious pleuro-pneumonia.

WEST NEWTON, February, 1878.

A SHORT CONTRIBUTION TO MEDICINAL DEONTOLOGY.

By F. S. BILLINGS.

The translation from District Veterinary Surgeon Schmidt, of Prussia, which I had the pleasure of offering to our readers and the public, emphasizes a fact which is worthy of attention. Those who are acquainted with continental veterinary literature know that it is being constantly enriched by such statistical facts, by men who are busy in the daily rounds of their practice. There is nothing really wonderful in the article in question. Yet we may go over in review English veterinary literature from year's end to year's end, and we find no such contributions. Yet they boast, and people in America are inclined to boast, of their wonderfully practical education. Where the practical point is, we cannot see. Another, even a man who never saw the inside of a school, or dissected the sexual organs of an animal, might and can, by practice, perform the operations as well as the best educated practitioner. He performs the operation and goes away satisfied, thinking he has done his duty. In this he is followed by many a practitioner, not only of our, but the human profession. This constitutes the much boasted practicality. He may or may not have served his patron faithfully; the future can alone decide that. If fever and other complications intervene, the empiric who has seen the inside of the school may be able to serve his patron better than the empiric who has learned only by experience—may be able, I say! Neither serve the community as they should, and the former is a *disgrace* to his profession and a traitor to his professional duties. It is this statistical studying and reporting of cases, this bending all to serve our own purposes and our duty to the people, as exemplified in the article in question, which distinguishes the scientific practitioner from the empiric practitioner. The latter is practical to himself, that is, he earns his bread and butter; the former is practical throughout, he serves himself even better than the other, for he is true to his duties; he serves his patron in doing as he requests; he serves his profession by contributing to statistics of eminent value; he serves his country by showing the value of operations which may have assumed a false appreciation with the people, or in rendering more clear and systematic the nature of any malady.



The medical profession may be said to be made up of the exclusive scientist, who studies the diseases, as the chemist the elements, by analysis and synthesis, and prepares the way for the true executor-artist, the scientific practitioner. Here the classification should end. Unfortunately, we must continue and sub-classify. We find the empiric from the schools, and the empiric educated by long continued practicing and, in individual cases, study and observation. This latter individual takes, in my mind, a place superior to the empiric from the schools. Here, at all costs, the classification should end. But we must go further. These two latter classes again subdivide, and we have school empirics, a part of whom are veritable quacks ; and self-educated empirics, a greater part of whom are veritable quacks.

Quacks are not alone of abiogenic origin. They do not all spring up fungus like. We too frequently develop and nourish them. Not every man who is entitled, from having scraped through a medical school, to write M. D., V. S., M. R. C. V. S. to his name, is a veritable educated and competent practitioner. Such examinations are necessary. They do not always, as they should, guarantee competency. *They can never guarantee character. The M. D. who advertises himself as capable of curing a cancer, not only uses the method of veritable quackery, but is out and out a quack.* Who will remove a cancer from the stomach ? A quack is a person in any profession, or out of it, who represents himself as capable of doing things he is incapable of doing. Removal is one thing, to cure is another. *To cure means it shall not again return.* A superficially situated cancer *may* in its early stages be removed, and not return either in its original or other locality. But who will dare to guarantee to me that metastasis has not already taken place, and the foul destroyer not again at work in another place ? The dentist may guarantee *to cure* a toothache, because he can remove the cause. Dare the dental surgeon guarantee *to cure* other pain dependent on carious or osteomalacic processes in the jawbones ? Can he tell me all that is going on within ? The surgeon may guarantee (in most cases) to cure a superficially seated lipoma, for he can remove it, and with it the irritant which caused it. Who will guarantee to *cure* me of consumption, diabetes, or many another fell disease ? The vital or physiological processes may, with proper and scientifically applied support, be able to overcome the disturbances within me ; but the diathesis remains, and the original processes may break forth again on very insignificant causes. Am I cured ? No ! but temporarily, in for-

fortunate cases permanently, healed. But so long as the danger of recidive remains, and it remains through life, I am not cured.

The practitioner who advertises thus, no matter who he is, no matter even if he has great abilities, adopts the methods of *quackery*, and is to be classed with *quacks*. Not every man we are so willing to style quack is veritably one. It is the character of the man, the way he represents himself, which constitutes the quack. The first requisite is to learn the philosophical application of words. And so it comes that V. S., D. V. S., M. R. C. V. S. may all amount to nothing also. A man who styles himself M. R. C. V. S. and prefixes the letter E as indicatory of Edinburg, is in some senses a quack, for the unsuspecting American people think it means England. He is a thorough quack when neither a member of the Royal College, or graduate of a veterinary school; and there is no Royal College of Veterinary Surgeons in Scotland, or, in a logical sense, in London either, that being a British and not local institution. Genuine men should write, not L. or E., but graduate of London or Edinburg under their names.

The V. S. who advertises himself as able in any case to cure spavin or lameness, in fact, any disease, adopts the method of quackery, and should be considered as a pariah by every true veterinarian, and shunned as a pest. The use of the word Professor by any practitioner is quackery, and to the writer's mind the assumption of it by teachers in American or British veterinary schools flavors of the same thing.

Unintelligent or unthinking owners fondly believe *a spavin can be cured*. Arthritis deformans, once generated, *cannot be cured*, and all the veterinary surgeons from Columella to eternity will never be able to cure it. If the surgeon is enabled to overcome a painful inflammation, but leaves me with a stiff knee, am I cured? The pain is removed, and I can use my limb, but it is not free as before. Is that a cure? So it is with spavin. We may ease the strain; we may hasten the inflammation, and bring it to an end; we may even reproduce it, and make it more complete in its work; we may produce a complete anchylosis instead of a partial one, and the pain may cease, but we leave a stiffened limb, which may, however, do good service, though at a disadvantage. Is that curing? Away with such nonsense. No one but a quack will, under general circumstances, mention the word *cure*. And all men, in either profession, who advertise themselves as *curers*, adopt the method of quacks, and should be treated as such. Alas! they cannot be prosecuted as such.

VETERINARY DEONTOLOGY.

By W. J. COATES, D. V. S.

Read before the New York State Veterinary Society.

At the last would-be meeting of the New York Veterinary Society I was sorry to hear some of the members say that if the meetings are not better attended than they had been, the Society would become defunct. While this would be a termination to be deeply regretted, would it not be a better one than to leave it gradually falling into disrepute and its end be a society without members? It is a disgrace to the profession that such remarks had to be made by the only workers of the Society. I am sorry to say that there are but a few who attend the meetings, and it is always the same faces over and over again; apparently the others find neither pride nor pleasure in doing so, and presumably can find no profit in it. Some say they live too far away, and when they do come, find nothing interesting; while others say that the one that was appointed to read a paper is not here, or if he is here, has forgotten all about it, or could not write on the subject given him. These are the reasons given by them for their non-appearance. This is a lame excuse. The veterinary profession, as you all know, is, at present, at a very low standing. And why? Because its members are not trying to uphold it. They lose all interest in it and their brethren members, and oftentimes have no respect for themselves or any one else, and put themselves on an equal footing with a quack. Still they will say: "I don't see how it is that *we men of science* should not be recognized by the sister profession and laity; a member of the sister profession is admitted to all kinds of society, and we are not; if we go to Europe we see a veterinary respected as well as the human, and still I don't see why it is not the same in this country." It is because the people of Europe were educated to it by the self-respect a veterinarian held for himself and his profession, but more than all by the associations they have formed, which bring to the notice of the sister profession and the people the work they are doing. They stick to each other, improve themselves and their science, and by their researches have saved the lives of many human beings, as well as millions of dollars' worth of stock, stamping out the different diseases, and keeping the country in a good hygienic condition. Is it so in America? No. The people were never educated to that point to know what a veterinarian is; they see

in him only a "horse doctor," as they style him. Are they to be blamed, imposed upon as they have been by men assuming our title, with no greater ability than perhaps that gained as grooms or stablemen to veterinarians in the old country, or by reading books written by horsemen, who themselves had but a superficial knowledge of the horse? Others that deserve more credit than many graduates, are benevolent men, who took an interest in horses and cattle, read the best books they could find, and by the practice gained, tried to supply the want that is still felt in many sections of our country for qualified men. Sometimes you will meet a foreigner who will appreciate an educated veterinarian for awhile, till he begins to see that veterinarians, as a profession, are, in America, indulging in quackery even more so than the quacks themselves, and thus lowering the profession to the ground, where it seems to lie.

Gentlemen, if you want to bring the veterinary profession to the point it ought to occupy, there are three things to do: 1st, Respect yourself; 2d, Suppress quackery wherever you see it; 3d, Form societies, support them and each other.

To have self-respect you must mix yourself with all kinds of society. Remember the old proverb: "Show me your company, and I will tell you who you are." It will suffice to patiently wait till American society respects you. No; self-respect ought to begin at home, and remember that respect for your profession is so closely allied to self-respect that you cannot sever the two. Does not your profession claim from yourself any other consideration than that due to it as the means of obtaining your livelihood? Are the powerful instruments the study of veterinary science has put under your control to be used for no higher aims than those of making money? If this is so, please point out the line where quackery stops and veterinary surgery begins. Strict honesty and close attention to duty, with persevering researches and study by all veterinarians, would soon convince the people of this continent, as it has done already in Europe, that in our science there is much to be respected.

To suppress quackery is certainly every veterinarian's duty. How is it to be done? Do not resort to it or countenance its use by any other person. We have not yet obtained that point reached by our Canadian brethren, where the law punishes the false appropriation of our title. But the quacks possess no organization; they have associations where the interest and energies of every individual member are united. The hold they have on stock owners is only an apparent one.

Veterinarians have been comparatively few in this country, and quacks have held the positions that qualified men ought to occupy, simply because no better could be found. Colleges in Montreal, Toronto and this city are yearly sending out qualified men, who are gradually uprooting the quacks. Let us unite, then, and completely ignore these men, and show the people by our education, abilities and societies that these men, who have so long imposed upon them, are but quacks that cannot be trusted. Our position can only be weakened in one way, and that is, that just as there are a few men practicing who hold no diplomas, but to whom all respect is due as honorable and persevering practitioners, so in the ranks of the veterinarians are found some who, in degrading themselves, cast a stain on their profession. These men ought to be considered and treated as quacks of the deepest dye.

In regard to veterinary societies, any one who has given any attention to the European societies, cannot but admit the valuable part played by them in raising the veterinary profession to its present condition. Have we not the same object to strive for, and by using the same means should we not be able to attain it? Yes; but not by half-hearted measures. Every veterinarian should consider it his duty to belong to a society. They are duty bound to support it, not only financially, but *at least* by their presence and criticisms, if they do not read papers. Memoranda should be taken of all interesting cases in your practice, and related at the meetings, and so incite discussion; and from the character of the debate raised, even the most learned of the members need never leave the room, without having added something to his knowledge. It is by these and similar means that we will obtain the object we strive for, showing the sister profession and the laity that our profession is a scientific and honorable one. It wants but perseverance and determination to succeed, and we will overcome all obstacles.

EDITORIAL.

With this number the first volume of the REVIEW is completed.

The success which has accompanied the publication of this journal, the only one of its kind published in the United States, devoted as it is exclusively to the interest and advancement of the veterinary profession, is one proof more of the progress which veterinary art is making in this country, and is a much satisfactory evidence that the need of such a periodical was much felt by veterinary practitioners all over our continent. To many of our members, however, this success is due; and our different correspondents, at home, as well as in Canada or abroad, can attribute to themselves the credit of this satisfactory condition. To all of them we tender our sincere thanks. Had it not been for them the editor and its assistants would have found their task much more difficult; and it will be gratifying to all to hear that the life of the REVIEW is now a sure thing, and a *fait accompli*.

Correspondence and original articles are coming from all directions, and there is no doubt that as every month passes this veterinary journal will find itself more and more one of the necessities of the library of every veterinarian in the country.

On account of the large increase in the circulation and of the receipt of material which comes to us every month, we find that the space, which up to date has been limited to printed matter, is becoming much too small; and we are glad to announce that steps are considered to make the REVIEW a larger journal than it has been heretofore.

It is proposed to have it printed with 10 *pages more* of reading matter, and so as to render it more approachable for every one, the editors are trying to have the cost of printing reduced, so as to bring the price of the subscription lower than it is. We hope to be able to announce in our next number that the REVIEW can be had at the rate of \$4 a year, and as soon as the circulation allows it to make it still lower.

PLEURO-PNEUMONIA.

The subject of contagious diseases in animals is one of the greatest interest to the veterinarian, to the physician, to the sanitarian; in fact, to all who have any bearings in the science of political economy.

Laws are passed by different governments for their regulation;

acts are established for their abolition. And recently the legislature of New York State was called upon to pass a law concerning the disease known as glanders.

We present in our pages two articles relating to pleuro-pneumonia: one, extracted from the *Country Gentleman*, is from the fertile pen of E. Salmon, D. V. M.; the other from E. T. Thayer, V. S.

An advocate of inoculation, Dr. Salmon, after calling the attention to the different modes which have been put into practice, closes its subject by recommending the operation in all cases where the disease has made its appearance. That his views are endorsed by many, there is no doubt, and the Wilhelm mode of operating has made many converts on the other side of the ocean.

In the January number of the REVIEW, Dr. C. H. Michener reports an outbreak, in which inoculation was performed, and from which, as far as we can judge, much benefit was expected.

One of the Eastern papers, the *Ploughman*, gave to the subject the honor of an editorial, which Dr. E. T. Thayer forwards us, and which we reprint in this issue. With this Dr. Thayer gives us a few remarks on the same subject. We all know the standing of the doctor as an authority on the condition of this disease in Massachusetts, having been called at different times, by his own State, to investigate pleuro-pneumonia, and to report as to the means of checking it. Rather opposed to the process recommended by Dr. Salmon, our friend Thayer points out that the only way to deal with pleuro-pneumonia is the old mode of stamping out.

VETERINARY EDUCATION.

Some time ago our indefatigable correspondent and friend, Mr. F. S. Billings, sent us a series of papers relating to veterinary education. Embracing, as the subject does, and covering, as the papers do, an important discussion on the matter, with the desire to give to these long articles all the wide circulation the whole question deserves, we succeeded in having them published in one of our best papers, the *Turf, Field and Farm*, whose editors, always ready to promote veterinary interests, as well as those of the people, kindly undertook their publication. So far four of the papers are published, and no doubt many amongst us have become familiar with the conclusion to which the author is driving, viz.: the establishment in the United States of a *National Veterinary Institute*.

There is probably no better time for the promulgation of the idea of the author of the papers, as our people are fast coming to the realization of the need and importance of well educated veterinarians all over the land. The success met in practice by scientific veterinarians, the social position which many of them command, the attendance at the veterinary schools, and, in fact, the progressive condition of anything which pertains to our art, tell plainly that the days of quackery, ignorance and imposture are fast coming to an end.

Of the manner in which the articles on veterinary education are written, and of the way adopted by Mr. B. to bring the subject to the attention of the American farmers, horse raisers, etc., we do not wish for the present to say anything. The question which for the time being occupies us, is the good results which would be derived by our people from the establishment of such a school.

Coming out from an European institution, where the teachings are most thorough, and yet impressed of the necessity of a well drilled (almost military drilled) institution, we must acknowledge that we consider the foundation of a national veterinary school as the true means to do away with some, if not all, of the so-called private undertakings which are, for the sake of money, going to throw over our continent a number of pretended well educated men, who will disgrace the profession and throw it back for a number of years.

If that institution is ever opened, and we hope we may see the day when it will be in full operation, it must necessarily do away with these private schools, chartered by special act of respective legislatures, or even of others, in which the work, no matter how well conducted, and the success depending, as it does, only on the energy of a few, could never be compared with those, that we know, large governmental institutions would produce or realize. It must be an essentially public and national affair; one in which neither political nor pecuniary influence can have entrance; one which will see its board of teachers picked out from amongst the best men in the country, and, as suggested by Mr. Billings, one where education will be free.

We would well recommend our friends to read the papers on veterinary education; and we feel assured that after such reading all will give their influential help towards the realization of a project which all good friends of the veterinary profession, and all lovers of their country, must be desirous to see in full blast.

EXTRACTS FROM FOREIGN JOURNALS.

By A. LIAUTARD, M. D. V. S.

LOSS OF MUSCULAR POWER IN THE HIND EXTREMITIES OF A HEIFER, DUE TO THE PRESENCE OF THE LARVÆ OF THE ŒSTRUS BOVIS IN THE MUSCLES OF THE BACK AND LOINS.

During the latter part of the month of April Mr. M. Storrar was called to visit a young heifer which had lost the use of its fore and hind extremities, and, consequently, was only able to raise itself sufficiently to turn from one side to the other. It was ascertained that it had been in this condition for a fortnight, no very determined attempt having been made to raise and support it in a standing position. The animal had, nevertheless, a good appetite, and was in fair condition. On passing the hand over the back and loins, the skin was found much corrugated and elevated; which, on further manipulation, was found due to the effusion into the subcutaneous tissue, depending on the presence of thirty to forty large larvæ of the *œstrus bovis* embedded in their sores, and congregated together in fours and fives.

The treatment was simple, and consisted in removing the irritating parasites by squeezing them out, and, secondly, of the application of warm fomentations and mild antiseptic lotions to the back and loins, a course of tonics, and the animal being slung for two hours in the morning and in the afternoon. She made a recovery in about ten days or a fortnight, when she was able to walk about, although the fore legs were much bent. These, however, in due time recovered their natural form.

—*Veterinarian*.

SINGULAR CASE OF DELIRIUM IN A HORSE.

A three year old pony was treated for colic and relieved. Five days after she was brought again for advice. In the morning had been driven a considerable distance, and when near home had exhibited signs of distress, and could only proceed at a walking pace. Immediately on her arrival at the infirmary of Mr. Hill she lay down, and shortly after was in a cold sweat, her nose propped on the ground, the fore limbs extended and flexed as if in the act of rising, the hind ones gathered under her. The pulse was weak, rapid and fluttering; the breathing, short and difficult; and extremities deathly cold. Auscultation revealed congestion of both lungs. An ordinary, diffusi-

ble stimulant having been given at first, she was ordered four ounces of brandy with half ounce tincture of ferri, to be given in a little tepid water, and mustard to be applied to the sides, and friction to the ears and extremities. An hour later her breathing was less labored, her extremities warm, and the pulse firmer. Shortly afterwards she was found lying on her left side, and, as it were, trotting at an enormous rate. Every limb was pounding away in precisely the same manner as they would do in fast trotting—fore and hind feet keeping exact time. The head was extended, the nostrils dilated, the ears pricked, and the tail carried out; but the eyes were unnaturally prominent and fixed. This imaginary race lasted seventeen minutes; ceasing with a shrill neigh almost as suddenly as it commenced, and leaving the patient bathed in perspiration. If touched or excited by noise the limbs were brought into the same action, but a gentle word and quietude had the effect of soothing the patient.

Between three or four hours after the above delirium she became conscious, took greedily of some tepid water, rose to her feet, ate a warm mash, and gradually continued to improve.—*Veterinary Journal*.

DISCORDANCE OF THE RESPIRATORY MOVEMENTS IN DISEASES.

By F. ST. CYR.

In a long paper this eminent veterinarian presents a series of experiments and observations which he has made upon the tracings obtained by him with the pneograph and pneumograph in the different diseases of the respiration apparatus. After printing the tracings which he has taken, recording the pathological lesions found in post-mortem, he arrives at the following conclusions :

1st. That in the state of health the motion of raising and lowering of the flank are executed simultaneously in the healthy animal.

2d. That in some diseases, and especially in pleurisy with effusion, in capillary bronchitis, when complicated with lobular pneumonia, in extensive pulmonary emphyzema, this harmony is more or less disturbed.

3d. That this disturbance of harmony thus resulting and which can be more or less recognized by the ordinary means of exploration, consists simply in this, that at a given time the abdomen enlarges, and the flank rises at the same time that the ribs are lowered down and reciprocally.—*Journal de Medecine Veterinaire de Lyon*.

REPORT OF CASES.

SCROTAL HERNIA AND CHAMPIGNON.

By W. J. COATES, D. V. S.

On August 20, 1877, a gray geld, six years of age, draught horse; owners, Etzel & Raab, of this city, was admitted to the hospital, suffering with colicky pains; pulse increased; soft and weak; respirations accelerated; body covered with sweat. On examining the scrotum, found a soft swelling on the left side, and in front of it a tumor, about the size of a hen's egg.

History.—Yesterday, at 6, P. M., he was driven through Central Park, and returned at 7, P. M. On being put into his stall, he began to show signs of colic. He was administered some kind of drench, and left alone all night; at 9, A. M., sent to the hospital.

Diagnosis.—Scrotal hernia, with champignon.

Prognosis.—Unfavorable.

Operation.—Thrown on the off side, and secured in the usual manner. A longitudinal incision was made on the left side of scrotum, down to the intestines, and found a melanotic tumor on the end of the spermatic cord, and taken off by the ecraseur. An incision was then made in the inguinal ring, and intestines reduced by taxis by an assistant. A clamp brought the parts together, and the animal allowed to get up and placed under opiates, as required, till he died, at 11, A. M., the next morning.

Post-mortem.—Ten inches of small intestines, gangrenous.

RUPTURE OF THE STOMACH—DEATH.

By the SAME.

On Sunday, January 13, 1878, at 11:30, P. M., I was called to the Sixth Avenue Railroad Company, of this city, to see a car-horse which was suffering from colicky pains since 10, P. M. On arriving there I found a bay gelding, eleven years of age, standing in his stall, anxiously looking around at his flank. His pulse was small, thready and quick; respirations accelerated; temperature, 100 $\frac{2}{3}$. The belly seemed to be smaller than natural, and tucked up at the flanks. He would lie down carefully, and stretch himself. Once in awhile would look at his flank, and then raise himself on his fore extremities, and sit on his haunches,

dog fashion, for five or six minutes. Get up and walk around the stall. Then stand in a corner, and seemed to have a continual dull pain. Twice he had eructation of gas. I diagnosticated either ruptured diaphragm or stomach, and prognosticated death. He was administered opiates every half hour, till he expired, at 4:30, A. M.

Post-mortem.—Abdominal cavity filled with bloody serum, mixed with partly digested food. The portion of the intestines that were lying on the inferior wall of the abdomen were highly congested, and showing all the characteristic lesions of acute peritonitis. Removal of the intestines showed a rupture of the great curvature of the stomach near the pyloric orifice. On removing the food from the stomach, and liquid from abdominal cavity, six or seven ascaris lumbricoides were found, the largest measuring *fifteen inches* in length, and about three-eighths of an inch in diameter.

LACERATION OF TENDON OF FLEXOR METATARSI.

By the SAME.

Description.—Black gelding, six years of age; belonging to a Dr. Hall, of this city.

History.—Found this morning, June 18, 1877, with his off hind leg hanging over the partition between his and next stable, with a lacerated wound in the front of the hock, and then sent to the hospital in the ambulance.

On admission, June 18, 1877, a transverse wound, about two inches in length, in the anterior tibial region, about four inches above the hock, with an inch of the tendon of the flexor metatarsi protruding. When made to walk he could not flex the hock, and would drag the foot along the ground.

Treatment.—Put in slings; leg bandaged; irrigation of cold water, day and night.

June 19.—Ligated the protruded tendon with *elastic ligature*; bandaged and irrigation.

June 22.—Piece of tendon sloughed off; moderate pressure with bandage and irrigation.

June 23.—About a quarter of an inch of tendon protruding, on account of the way he rested the leg. It was excised, and then cauterized with the actual cautery. Same treatment. It began to heal nicely; and on July 26, left off bandage, and cauterized the wound with saturated solution of chl. zinc, twice a day. He was exercised ten

minutes, increased gradually to one hour daily. He could not flex the hock, and would drag his toe along the ground. He was discharged on the 20th of August, with wound healed, and getting more use of the leg, to be sent on a pasture for two or three months. He has now resumed his work, as good as ever.

JURISPRUDENCE.

VETERINARY JURISPRUDENCE.

Read before the Montreal Veterinary Medical Association, 4th January, 1878, by D. McEachran, F. R. C. V. S., President.

GENTLEMEN: No subject outside of purely professional study has a greater claim on students and practitioners of veterinary society than that which I propose to introduce for discussion this evening, yet, I regret to say, that there is no subject on which there is so much diversity of opinion as on the question of soundness and unsoundness in horses. Many an instance has come under my own notice where diversity of opinion among the members of our profession has given rise to expensive and tedious law suits, the cost of which, while vexatious and costly to the litigants, proves highly detrimental to the profession. I am well aware of the great difficulty there is in attempting to reduce professional opinions to the same common standard, but surely if the subject of soundness was thoroughly understood by veterinary surgeons, there could not be the same difficulty constantly arising, as one certifying a horse to be sound and another the very reverse. True, all may not be gifted with the same accuracy of observation, and what one may notice another may overlook, and thus a difference of opinion arise; but where the object of difference is apparent to both, but the opinion as to its affecting the soundness are diametrically opposite, it indicates something wrong somewhere, ignorance as to what really constitutes unsoundness, or want of practical experience. I must confess that our literature on this subject is so scant as to be almost a disgrace to us, and so little attention is paid to it by the schools that really after all but little blame can be attached to our students, who, through ignorance of the subject, fall into grave errors in attempting to advise their clients in matters of jurisprudence. Hence my reason for bringing it before you to-night, that I may endeavour to create an interest in the subject, and impart a few useful hints, which, I hope, may in some measure lead to our ar-

iving at the same conclusions in our examinations of horses as to soundness.

Presuming that my hearers have sufficient anatomical and pathological knowledge, with the requisite tact and practical experience, to enable them accurately to determine by examination the existence of any alteration or deviation from the natural or healthy standard, and have judgment enough to decide to what extent that deviation may, then or afterwards, affect the value or usefulness of the animal, I will proceed to explain what should constitute unsoundness, in the legal acceptance of the term, and give a synopsis of the laws of warranty in the British Empire and her dependencies.

SOUNDNESS.

Were we to adopt a definition of the term sound, as meaning an animal entirely free from any alteration in structure or functions, we would seldom, indeed, meet with a sound animal, as any slight wart or injury or thickening of the skin, of no consequence whatever, would render a valuable animal unsound, which would be absurd and unjust.

Thus many trifling affections, such as windgalls, splints (when small), capped hock, pimples, etc., would prevent us from certifying the animal as sound; yet they would not, in the slightest degree, interfere with his usefulness.

I am well aware that what would be a trifling matter in an animal of a certain conformation, would be a serious affair on another animal of a different form. It is also a fact that a defect which would incapacitate a horse for rapid work may be no detriment to him at slow work on a farm. Thus it will be seen that, if we adopt the definition of soundness given above, we may not only meet with a sound animal in a hundred, but we may often deprive our clients of animals that suited them admirably.

According to Lord Eilenborough, "any infirmity that renders a horse less fit for present use or convenience, is an unsoundness." The late William Percivall says: "Soundness as opposed to actual or decided lameness (or as synonymous with good health) is a state too well understood to need any definition or description; when we come, however, to draw a line between soundness and lameness or their distinguished form—to mark the point at which one ends and the other begins—we meet a difficulty, and this difficulty increases when we find ourselves called on to include, under our denomination of unsoundness, that which is *likely* or *has a tendency* to bring forth lameness, not simply

that every *lame* horse is unsound, but, to add these words, or *which has that about him which is likely, or works to render him lame*. This will, it is true, open the door to difference of opinion and equivocation. There may, as we have seen, spring up two opinions concerning the *presence* even of lameness. There will in more cases be two opinions concerning that which is accounted to be the precursor of lameness, or may have a tendency at some period proximate or remote to produce it. . . . There will be less difference of opinion among professional men than among others, and he truly adds, the more skillful and respectable the professional persons are, the greater will be the probability of a happy unison in their views of the case."

As the practical result of a very large and varied experience in the examination of all classes and breeds of horses, for every conceivable purpose, I have come to the conclusion that no definite rule can be laid down but that *whatever alteration in structure or function so affects the animal as to interfere with his usefulness or reduce his value renders him unsound*.

In a new country like this, where the great majority of horses submitted to us for examination as to soundness are being bought by corporations or individual clients, who claim to have no knowledge of horses whatever, and seek not only your opinion as to the soundness but the suitability also, we are thereby compelled to qualify our judgment according to the purpose for which the horse is intended. Thus take for instance a carting or tramway establishment—were the veterinary examiner to reject all animals not *absolutely* sound—the company would find it difficult to keep up their stock of horses, and would have to pay high prices for every one bought, such a rule would be quite impracticable. Our opinions therefore ought to be modified according to the extent to which the defect interferes with the usefulness of the animal, or reduces his value. A slightly blemished horse, if bought at a correspondingly low price, may be just as useful, and earn as much for the company as one absolutely sound. In the case of a fancy, high-priced horse, where the least defect would reduce his value or render him liable to lameness or disease, we must be more decided in our opinions.

I agree with Oliphant who says: "When a horse is free from hereditary disease, is in possession of his natural and constitutional health, and has as much bodily perfection as is consistent with his natural formation, a veterinary surgeon may safely certify him to be sound. But as there is in most horses some slight alteration in structure either

from disease, accident or work, a veterinary surgeon in giving his certificate had much better describe the actual state of the horse, and the probable consequences without mentioning *soundness* or *unsoundness* at all, and so let the purchaser buy him or not as he may be advised. Because in such a case a straightforward statement would be made, and a man in the veterinary profession would not be called upon in an off-hand manner to decide questions which are of the greatest nicety, being full of uncertainty and upon which no conclusive decision can safely be arrived at. For we find the greater the difficulty the more likely is a decision (if come to at all), to be the result of a slight preponderance of one over each of many conflicting opinions."

Our position, however, is materially different where we are called upon, as experts, or in disputed cases, merely to decide whether or not the animal is sound within the meaning of the law of warranty.

For instance, a gentleman bargains with a dealer for a horse, to pay a certain price on condition that he is perfectly sound. 'The veterinary surgeon has nothing whatever to do with the conditions of the sale, the suitability of the animal, or the price paid ; he is merely to examine carefully the horse, and if, in his opinion, he considers the animal free from all the defects or diseases which are held to be unsoundnesses, then his duty is to certify that the horse is sound in his opinion ; or in cases where the purchaser having a warranty of soundness, and discovering that the horse is not sound, submits him to the veterinary surgeon to decide the question, you must not take anything into consideration but the actual fact of the presence or absence of what constitutes unsoundness, and give a certificate accordingly. W. Mavor, of London, (in the *Horseman's Manual*, p. 9), says : "I consider a horse to be sound which is perfect in structure and perfect in function. I also consider a horse to be sound though with alterations in the structure, provided he has never been either lame or incapacitated (and is not likely to become lame or incapacitated) for performing the ordinary duties to which he may be subjected in consequence of such alteration, and can perform them with equal facility as if there had been no such alteration of structure."

According to Chief Justice Eyre, "A horse laboring under a temporary injury or hurt which is capable of being speedily cured or removed, is not for that an unsound horse within the meaning of the warranty ;" an opinion differed from by Lord Ellenborough, who distinctly lays down that "to constitute unsoundness it is not essential that the infirmity be of a permanent nature, it is sufficient if it render the ani-

mal for the time unfit for service." To me it appears that Lord Ellenbrough's rendering is the most just, for we all know that many apparently trifling causes of lameness which are often only temporary, such as a bruise of the foot, a prick with a nail, or a thrust often lead to more serious diseases which result in permanent or, at least, protracted lameness. A slight cold may lead to a chronic cough, nasal gleet or worse. On the other hand, they are usually temporary causes which for the time unfit the animal for service.

Mr. Baron Parker (Oliphant's Law of Horses, 68), says: "I think the word sound means what it expresses, namely: that the animal is sound and free from disease at the time he was warranted sound, if indeed the disease were not of a nature to impede the natural usefulness of the animal for the purpose for which he is used; as, for instance, if a horse had a *slight pimple* on his skin, it would not amount to an *unsoundness*; but even if such a thing as a pimple were on some part of the body where it might have that effect, as for instance, on a part where it would prevent the putting of a saddle or bridle on the animal, it would be different. An argument has, however, been adduced from the slightness of the disease and the facility of cure; but if we once let in considerations of that kind, where are we to draw the line? A horse may have a cold which may be cured in a day, or a fever which may be cured in a week or a month, and it would be difficult to say where to stop. Of course, if the disease be *slight*, the *unsoundness* is proportionately so, and so also ought to be the *damage*, and if they were very inconsiderable, the judge might still certify under the statute of Elizabeth to deprive the plaintiff of costs."

Baron Anderson, agreeing with Baron Parker, adds: "The rule as to *unsoundness* applies to cases of disease and accident, which, from their nature, are only temporary, it not being necessary that the disease be permanent or incurable, and this is laid down as law by Lord Ellenborough, in *Elton and Brogden*, and *Elton and Jordan*; also, by the Mr. Baron Parker, in *Coales and Stephens*, and by the Court of Exchequer, in *Kiddell and Burnard*, although Mr. Justice Coleridge, in *Balden and Brogden*, was of a different opinion. It will be unnecessary to take into consideration acute diseases, such as fevers, inflammation, etc., because all horses are, beyond dispute, unsound during the time they are afflicted by them."

[TO BE CONTINUED.]

BOOK NOTICE.

THE PATHOLOGY AND THERAPIE OF SPAVIN. 1875. Pages 234. By W. DIECKERHOFF, Teacher of Hygiene, Dietetics, Obstetrics and Medical History at the Berlin Institute, and Conductor of the Visiting Clinic. Price, 6 marks (\$1.50.)

In looking over the numbers of our REVIEW for the past year I am surprised to find we have given no attention to foreign veterinary literature other than the occasional translations. In order to make amends for this want, the writer proposes to take the responsibility with regard to German literature on himself, and will hereafter make notice of all valuable additions from this source, and, as time offers, call attention to some books of value which belong to the past and present. The above mentioned monograph by Herr Dieckerhoff is a work which should be studied by every veterinary student and every stock raiser who commands control enough of the German language to read it. I am not saying too much when I say it contains not only all there is known on the subject in other works, but also some new and very valuable ideas. The writer has carefully passed in review the views of authors on this subject in all countries where veterinary literature has been published. He begins with a very interesting sketch of the derivation of the word spavin—"spat," "éparvin"—and, with Hering, considers it to have been derived from "spavenius" first used by Jordanus Rufus (1250). It is not clear whether Rufus formed the word or not.

The author then passes in critical review the ideas upon this subject of J. Rufus, Marx Fugger, Thomas Blundeville, Ruini, Frichter, Solleysell, Saunier, Gibson, Lind, Bourgelat, Lafosse, Rohlwes, Havemann, Hering, Schrader, Williams, and many other authorities of the past and present.

His views of the origin of spavin, that is, of its place of origin, vary much from other authors, and have not as yet gained any great acceptance. The Germans divide the "flexor metatarsi," into two distinct parts and rightly, not considering the supporting (?) ligament as belonging to the m. tibialis auticus. As known, the inferior insertion of the so-called suspensory ligament is formed of two branches, the medial of which ends upon the antero median superior extremity of the metatarsi, and os tarsili secundam (os cuneiforme sec.) Over this

passes the median insertion tendon, or latter ramification of the same, of the m. tibialis auticus; between these two tendinous ramifications is situated a *bursa*, and in this bursa, according to Herr D., is to be sought the genetic point from which the inflammatory processes extend to the fibrous exterior, and, finally to the inner synovial membrane of the capsular ligament, and from thence to the periost and tele ossea, followed by the osteophyte development. Or, in his own words: "Der Spat stellt nach meiner Auffassung einer complicirten entzündungs-Process von chronischen Verlaufedar, welcher in dem inneren Blatte der Bursa vom fächerformigen, medialen Sehnenschenkel des Schienbeinburgers (the tendon) seinen Anfang nimmt, sich von da auf die Gelenkkapsel und auf das Periost der unteren Abtheilung des Sprunggelenks fortsetzt und eine chronische Entzündung der Synovial membrane mit Erweichung und Auflösung der Gelenkknorpel und Entzündung des Knochenmarks herbei führt."

Our author then carefully considers the aetiology of spavin, taking notice of the development of the same by cattle; the anatomy and physics of the tarsus; and the relations of the ligaments and fascias surrounding and superior to the same. He gives careful consideration to heritability of spavin, that is, to the *disposition to it*—for no sensible man believes foals are born spavined; to the constitutions favoring such development; to the various deviations in form of the tarsus, etc.

Following this we find a careful consideration of the development and pathological anatomy of this deformity. It would be interesting in this place to know, from microscopical study, how the osteoblastic layer of the periost deports itself in these processes; or, in other words, which are first apparent, inflammatory processes in the tissues of the inner parietes of the bursa, or in the osteoblastic layer of the periost? To my mind this is an open question which our author has not sufficiently answered, and the answering of it is the work of future investigations.

The theories of spavin are carefully considered, and I have above called notice to our author's ideas which are carefully drawn and ably supported by experiment and experience. Following on this we have a consideration of the diagnosis and prognosis, two sections of immense value to veterinarians and stock raisers, and considered with a fullness and exactness nowhere else to be found.

The concluding section of the book is devoted to therapie, and our author favors us with a valuable and critical review of all plans of

treatment from earliest date. He considers blisters, and all such irritants, useless, and nothing but unnecessary torture, "spavin cures" a humbug, and ferrum candens the only means of the past which offers any hope of betterment; but, above all, he offers a new method which I earnestly recommend to the profession, and that is the simple opening of the bursa by direct pressure of the bistoury, and cutting through the ramification of the m. tibs. autic. which soon again unites. The operation is spoken of very highly by some, but has as yet gained no general adoption, yet from its simplicity and ease of performance, it deserves a most earnest trial.

Time fails me to give a longer notice of this very excellent and opportune contribution to our literature. The book is, in my opinion, an indispensable necessity to every veterinarian—student or not—as well as educated stock raiser. Although it may look like stealing an advertisement from our worthy editors, I find it my duty to say that Messrs. Meyer & Mueller, 38 Franzosische Strasse, give twenty per cent. off (not including postage), and do the largest business with veterinary students here. The publishers of the above work are the most exacting men for the full price in business, therefore I have not mentioned them. Money can be sent per international post money orders, and German books received much cheaper than through American booksellers. The above concern are my own agents, and I can cheerfully recommend them.

F. S. B.

BERLIN, Jan. 20, 1878.

VETERINARY SOCIETIES.

MEETING OF UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The next semi-annual meeting of the United States Veterinary Medical Association will be held at Young's Hotel, Boston, Mass., March 19, 1878. John Myers, Jr., of Cincinnati, O., will present a paper on Surgical Diseases, and C. B. Michener, of Carversville, Penn., one on Cerebro Spinal Meningitis. All members of the association are invited to be present.

By order,

A. A. HOLCOMBE, D. V. S.,

Secretary.

MEETING OF THE NEW YORK STATE VETERINARY SOCIETY.

At a special meeting of the New York State Veterinary Society, held in the lecture room of the American Veterinary College, 141 West 54th Street, N. Y. City, the President, J. L. Robertson, presided, and the following members answered at roll call: J. L. Robertson, A. Liautard, A. Lockhart, L. McLean, C. Burden, P. Nostrand, E. Nostrand, and A. A. Holcombe.

The Chair appointed A. A. Holcombe Secretary, pro tem. After the reading and adoption of the minutes of the previous meeting, A. Liautard read communications from Messrs. Hopkins, Bell and Plageman, regretting their inability to be present at the meeting.

A discussion as to whether the place of meeting shall be more centrally located, terminated in the appointment of A. Lockhart and A. A. Holcombe as a committee to procure a suitable room for future meetings of the society in the Cooper Institute, corner of Fourth Avenue and Eighth Street, New York City. On motion of A. Lockhart the by-laws were so changed and amended that the society will hereafter meet on the second Thursday of every month, instead of the fourth Thursday, as heretofore. The present officers of the society were then re-elected for the ensuing year. By invitation, William J. Coates, D. V. S., of New York City, read a paper on "The Duties of Members to the Profession."

A vote of thanks was tendered the essayist, and the subject discussed at length by Messrs. McLain, Liautard, Lockhart and Robertson. Mr. McLain then promised to read a paper at the next meeting of the society, and a motion to adjourn was carried.

A. A. HOLCOMBE,
Secretary.

ANNUAL EXERCISES AMERICAN VETERINARY COLLEGE.

The hall room of the College of Physicians and Surgeons was well filled on the evening of the 28th of February, for the first public annual commencement of the American Veterinary College.

After a few congratulatory remarks from the President of the Board and Trustees, and the reading of the report of the work done during the collegiate year, 1877-'78, by the Secretary, the degree of D. V. S. (Doctor of Veterinary Surgery) was granted to the following gentlemen: John F. Winchester, B. S., of Massachusetts; Alvord H. Rose, of New

York; William G. Schmidt, of New Jersey; Samuel S. Field, of New York; Julius C. Force, of New York; William H. Wray, of New York.

The prize for the best anatomical preparation was given to John F. Winchester, B. S., D. V. S. Prof. J. C. Dalton, M. D., and Prof. J. W. S. Arnold delivered addresses, which were well appropriated to the subject and warmly applauded.

In conclusion, the announcement was made of the opening of the spring session to take place on March the 8th.

The addresses of Prof. Dalton and Prof. Arnold will appear in our next issue, with a concise report of the collegiate year's work.

ONTARIO VETERINARY COLLEGE.

By J. T. DUNCAN, V. S.

The first annual dinner of the students attending this institution took place at the American Hotel, on February 1st, and was in every respect a gratifying success. It was a temperance entertainment. About seventy students were present, and the guests of the evening were Prof. Smith, the Principal of the college, and the other members of the staff, viz.: Dr. Barrett, Prof. Buckland, Mr. Duncan, Mr. Hayes and Dr. Thorburn, as well as several private citizens.

Mr. J. V. Newton occupied the chair. The Chairman read a letter of apology from the Attorney-General, expressing regret at his inability to be present. A similar communication was also read from Dr. Borrell.

After the toast of "The Queen" had been duly honored, the toast of "The President of the United States" was warmly received, and replied to by Mr. Milnes, of Iowa, in a happy speech. The "Army and Navy" was responded to by Dr. Thorburn; the "Agriculture and Arts Association" by Prof. Buckland, after which the toast of the evening was proposed by Mr. Humphries, "The Ontario Veterinary College."

Prof. Smith, on rising to respond, was received with long continued applause. When this had subsided, the Professor, after gracefully thanking the students for such a warm reception, proceeded, in a most eloquent manner, to touch upon many points of interest in connection with the college. The names of the late Hon. A. Ferguson and Prof. Buckland will ever stand associated with its inception. The progress of the college has been steady and constant, attaining its present commanding position from beginning. A large measure of its success has been due to the ability of its professors. Without good students, how-

ever, an institution will not succeed, and these the Ontario College has never lacked; men of perseverance and ability, men who have done honor to themselves and the profession after graduation. The harmony and good feeling which has always existed between the students and teachers has been remarkable, and the kindly feeling has not ceased with college life, for most of the graduates entertain the warmest feeling towards the college and its teachers. Although to a large extent a private enterprise, the Ontario College is likely to prove a national benefit. Very recently the view has been urged that a veterinary college should be a national institution, and not a private one. While this is true to a great extent, until the time comes when the government of this country, or the government of the United States, do more to encourage the establishment of a National Veterinary Institution than they have done, this very important subject will have to depend on private enterprise. And although our buildings, infirmary and all appliances for the teaching of veterinary surgery are equal, if not superior to any on the continent (and are the result largely of private enterprise), there is no intention to stand still, but every improvement for the benefit of students will be carried out. The success of the College has been great. Students attend from all parts of Canada and the United States, even far off Texas sending her representatives. And to these gentlemen we extend the right hand of fellowship, and give them a hearty welcome to Ontario, to Toronto and to our College. "In conclusion, I hope the work begun in our institution will yet have a national influence. Yea, not only a national, but a continental influence; and I believe, through the medium of our graduates, who are already locating all over this continent, and through the medium of the gentlemen who intend to graduate, the Ontario Veterinary College, small as its beginning has been, its influence will be felt, from the St. Lawrence to the Gulf of Mexico, and from the Atlantic to the Pacific."

Prof. Smith resumed his seat amid enthusiastic applause. In reply to the toast, "Our Professors," Dr. Barrett remarked upon the fact that each of the graduates of this College, wherever settled, would be a centre, as it were, whence information of the most valuable kind would flow to the public, and whose influence would be highly beneficial to the country at large. He spoke in the highest terms of the College and gentlemanly bearing of the students, and resumed his seat amid applause.

The "Veterinary Profession" was responded to by Mr. Duncan. He sketched the condition of the profession twenty years ago, and con-

trusted it with its position to-day. The progress made had been due to several causes, mainly, however, to two, viz. : the general advancement of education, and to the establishment of the Ontario Veterinary College, which had been due to the efforts of Prof. Smith. He anticipated a bright future for the College. (Applause.) The toast of "Our American Students" was responded to by Mr. Wheat, New York State, who spoke in the highest terms of the College, and of the kindness they had received at the hands of the Canadian students. Many other toasts were proposed and capital songs sung, and the company broke up at 2, A. M., after singing "Auld Lang Syne" and "God Save the Queen."

CORRESPONDENCE.

OPEN JOINTS.

EDITOR VETERINARY REVIEW :

Behold, another luminary lights the northern sky !

Rochester is convulsed with parturient throes, and to our list of pathologists we add a new and "Cutting" name. Happy Rochester ! we send thee greeting. Thy offspring's birth was premature, yet still we trust the child will live, and living gain with growth a knowledge of itself. And now, since thou art a primipera (unless, perchance, thy previous abortions have given thee claim to something more), I venture thee advice, for, in the pride of thy young motherhood, some youthful indiscretion may rob the world of this new-born prodigy.

First, then, guard well thyself, else parturient apoplexy or milk fever may deprive the child of the nursing care which only a mother can rightly give ; and that thy milk may nourish well the tender form that draws it from thy breast, a just regard to diet must be paid ; and guided by his greatest wants as measured by his recent prattlings, we recommend thee *fish*, because, forsooth, it stimulates the growth of brain as we've been told, and may induce the child to *think*—which would, indeed, be an achievement worthy of thy highest aim.

Next, when growth and age, and thy good sense, have taught the youthful mind to comprehend those simple things which now it does not understand, unveil the shrine where Virchow, Billroth, Rindfleisch, Paget, Green, Lister and other master minds have knelt, and let the

brightness of their fame impress this embryo pathologist with a just sense of his own ignorance and presumption. Then lead him away into the immensity of knowledge he has not seen, and cannot comprehend, and there let him learn the *first principles* of the science he has thought to teach, and when Old Time has silvered well the plenteous tresses that grace thy brow, maternal pride may justify the praise bestowed by thee on thy son who has learned to treat an open joint.

L. L.

FOREIGN LITERATURE.

Beitrage zum Situs des Rindes, von Prof. Gunther.—Anleitung zur Mikroskopischen und Chemischen Diagnostik der Krankheiten der Hausthiere, für Thierärzte und Landwirthe, von Siedamyrotzky und Dr. Hofmeister.—Porpora Emorrhagia in giovani ibridi. Dr. M. Ortolani.—Lectures on the Examination of Horses as to Soundness. W. Fearnby, M. R. C. V. S.

COMMUNICATIONS RECEIVED.

J. T. Duncan, Toronto; E. F. Thayer, Massachusetts; F. S. Billings, Berlin; W. J. Coates, New York; A. A. Holcombe, New York; L. L.

EXCHANGES AND JOURNALS.

Country Gentleman, New York; Live Stock Journal, Illinois; Scientific American, New York; Hospital Gazette, New York; Turf, Field and Farm, New York; The Ploughman, Massachusetts; The Leader, Canada; Medical Record, New York; Mouvement Medical, France; American Agriculturist, New York, etc., etc.

PAPERS RECEIVED.

D. McEachran, Canada; J. Myers, Jr., Cincinnati; F. S. Billings, Berlin; J. C. McKenzie, Rochester.



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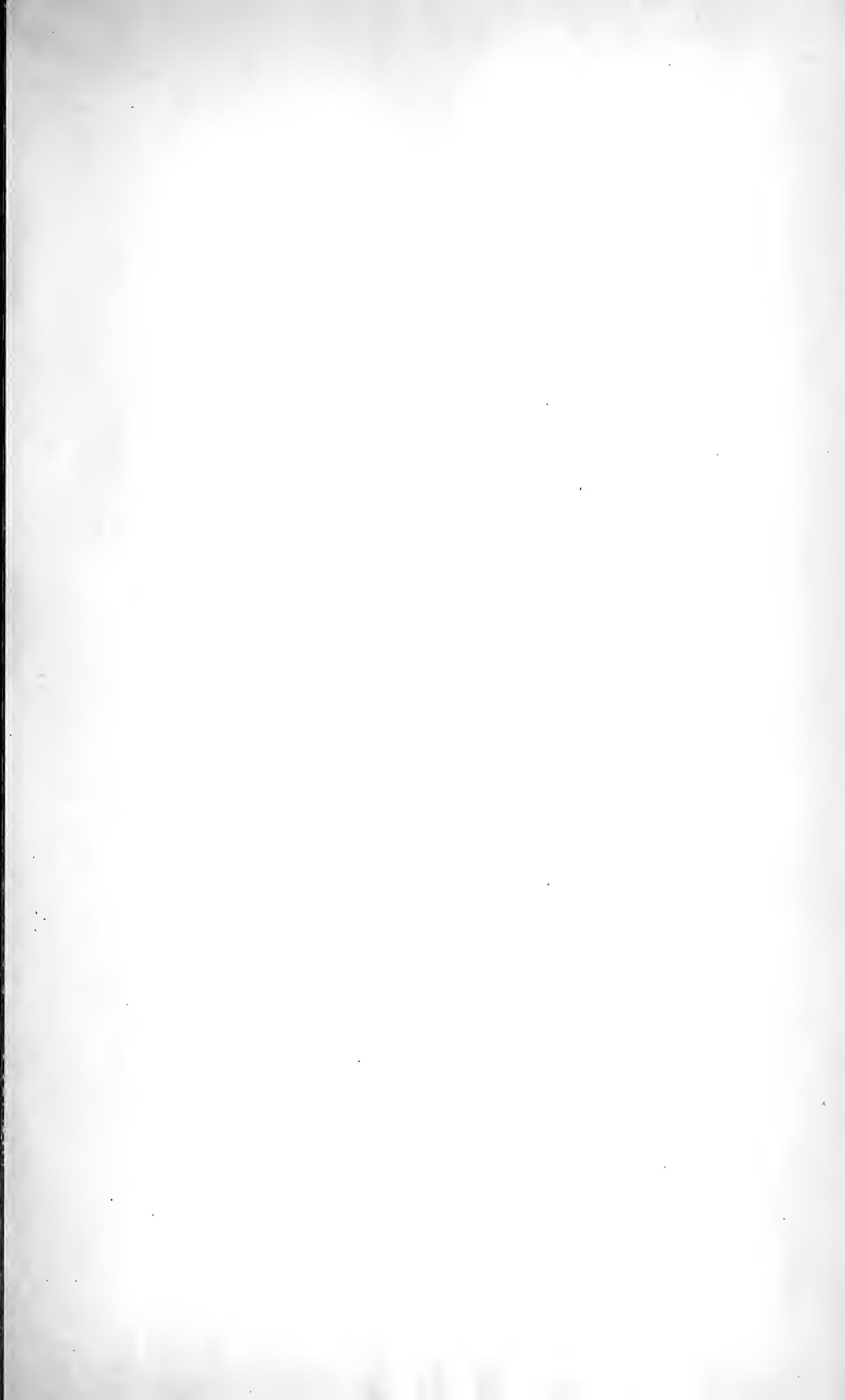
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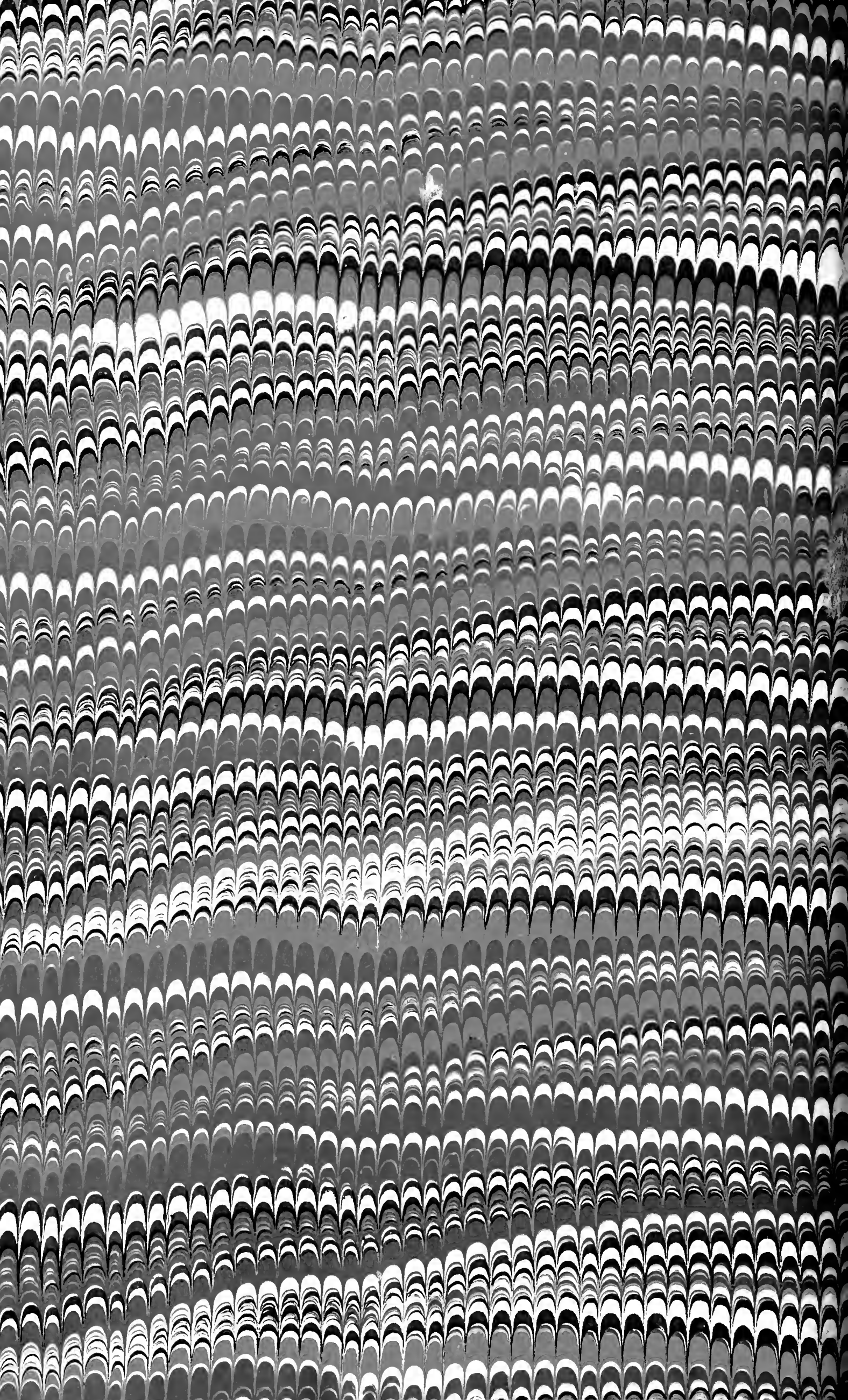
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